

# T2/T2S Consolidation info session

20 December 2019

DeNederlandscheBank

EUROSYSTEEM



# Agenda

- 09:30 – 10:30 TARGET2 algemeen en planning
- 10:30 – 11:00 Koffiepauze
- 11:00 – 11:45 Presentatie SIA/Colt
- 11:45 – 12:30 Presentatie SWIFT
- 12:30 – 13:30 Lunch
- 13:30 – 15:30 Toelichting op de UDFS
- 15:30 - ..... Borrel

# TARGET2 and T2S Consolidation

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# Motivation

For more than a decade TARGET2 has been running smoothly.



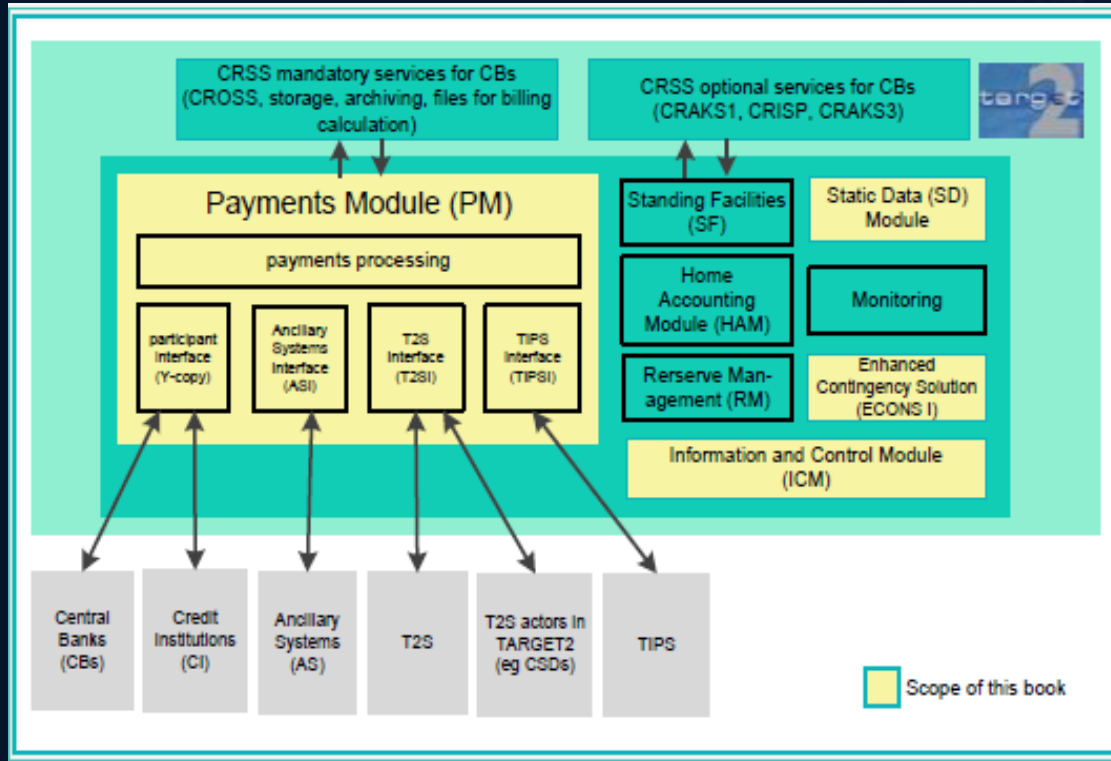
However:

- The payments landscape has changed significantly.
- Technical opportunities have further increased.
- The cost structure has been challenged.

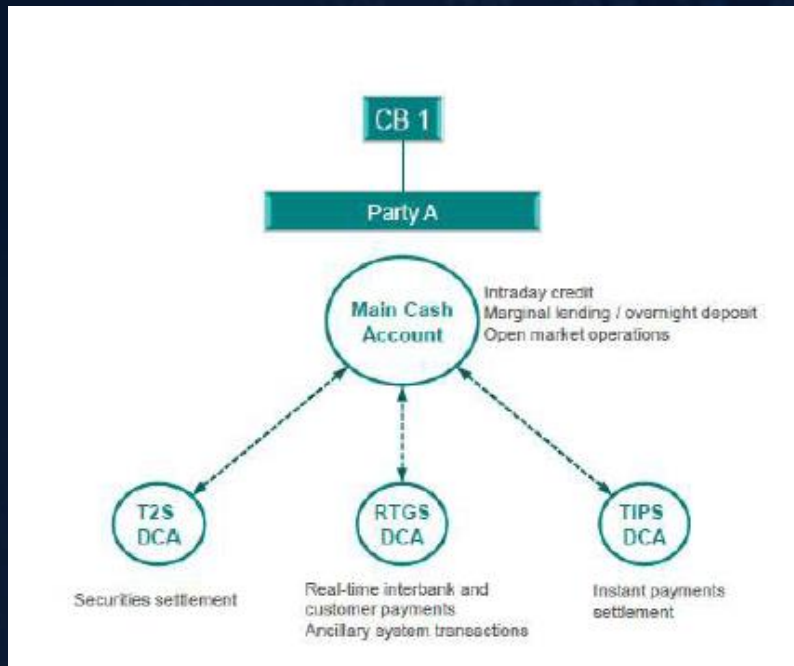
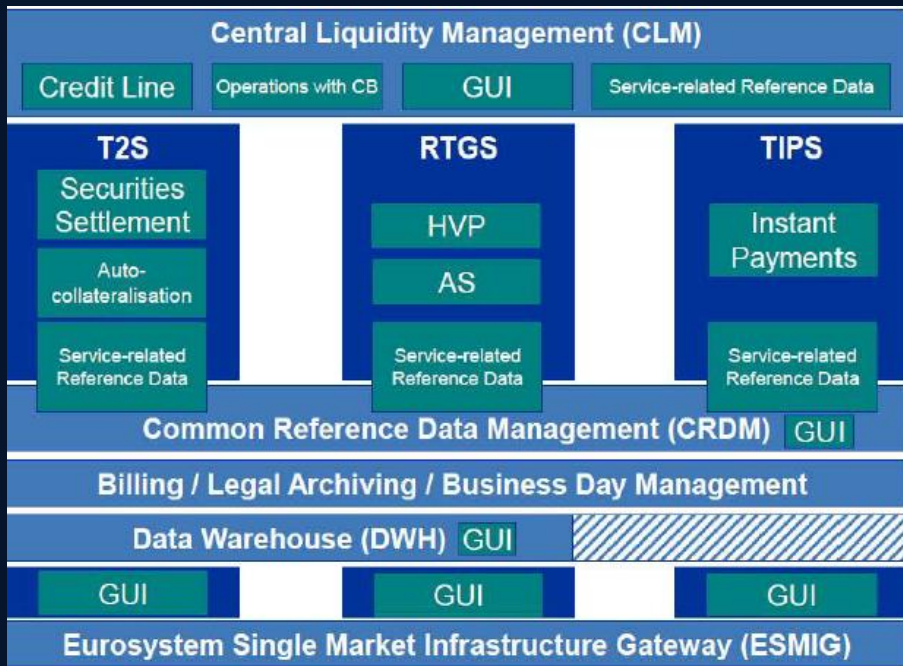
# Objectives

- Improved efficiency.
- Optimised liquidity management.
- Easier access to services via harmonised interface.
- Enhancement of RTGS services.
- Aligned use of messaging standards.
- Reduced operational costs.

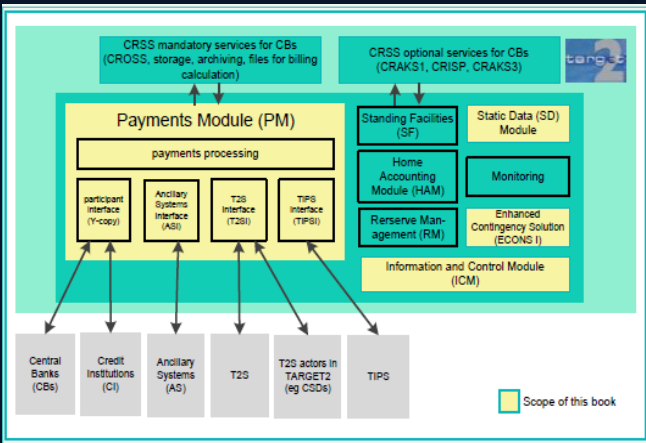
# Current TARGET2



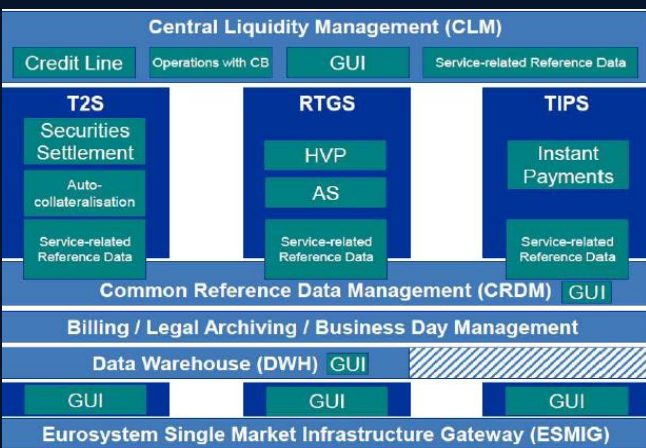
# Future TARGET Services



# Main changes

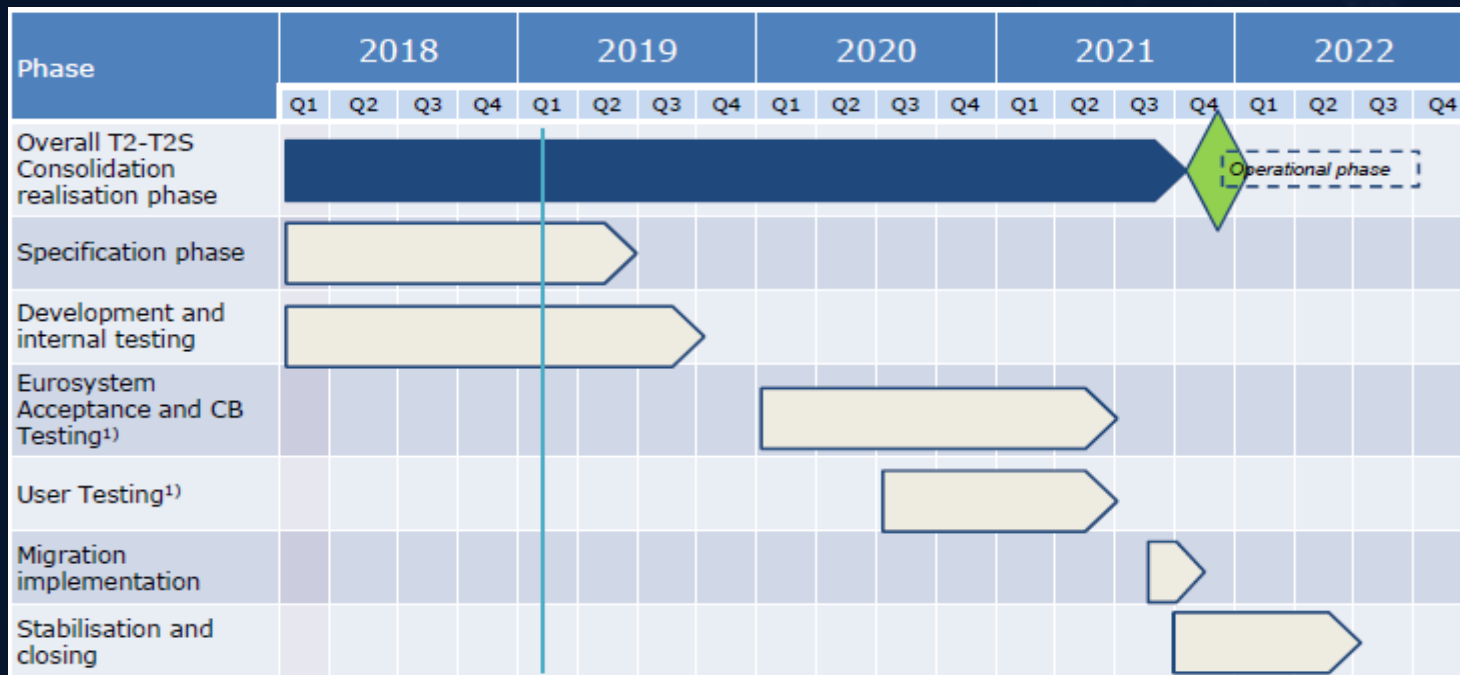


- All Central Bank Operations (CBO) will be handled in CLM, all participants are required to open a Main Cash Account (MCA).
- Interbank payments will be handled in RTGS, participants need to open an RTGS Dedicated Cash Account (DCA) for this.
- No separate Home Accounting Module (HAM) anymore, current Home Accounts will become part of CLM (as MCA).
- Functionality of Standing Facilities Module (SF) will become part of CLM, current Marginal Lending Accounts and Overnight Deposit Accounts will migrate to CLM.
- Functionality of the Reserve Management Module (RM) will become part of CLM.
- Static Data of T2 will be shared with T2S and TIPS, i.e. Common Reference Data Management (CRDM).
- One common communication infrastructure for T2, T2S and TIPS for both U2A and A2A-mode, i.e. ESMIG:
  - Two network service providers, i.e. SWIFT and SIA/Colt.
  - No SWIFT-specific features anymore, like RBAC.
  - Move from Y-copy to V-shape.
  - Change from MT-messages to ISO20022-messages.
- Multi-currency, but no conversion.
- Liquidity pooling/Virtual Account and related functionality will be discontinued (Consolidated Information will remain).



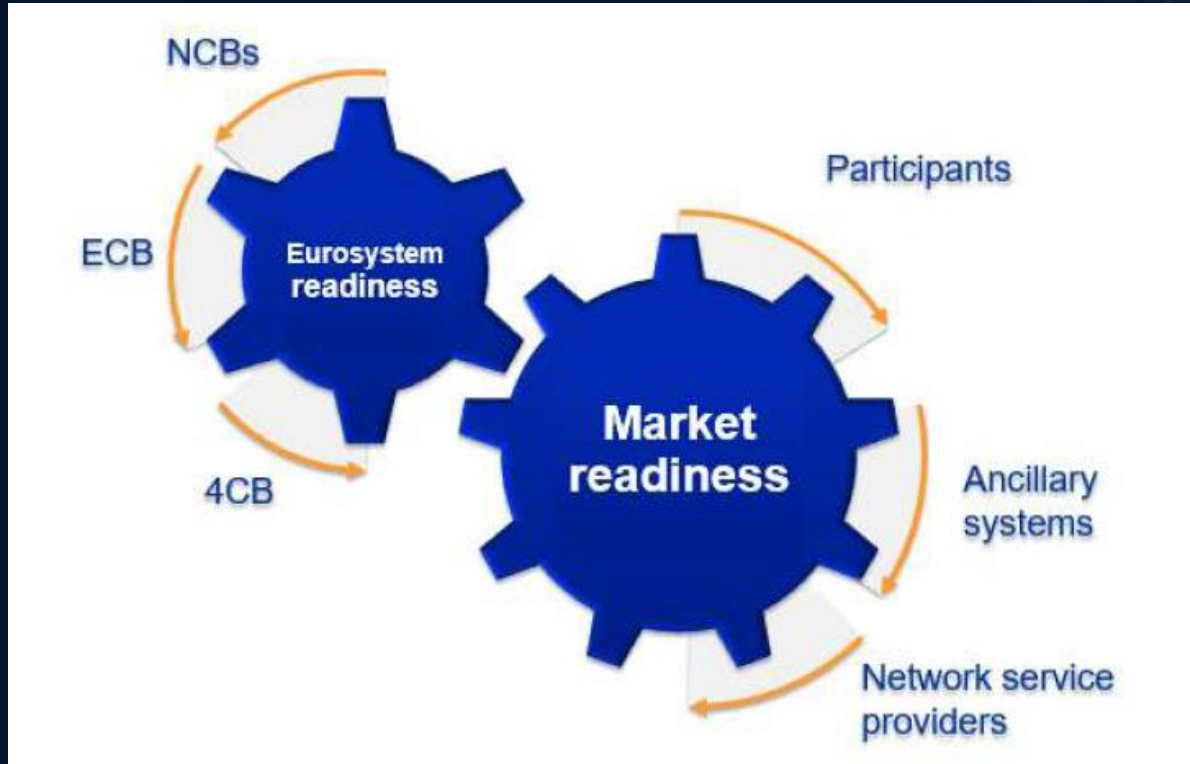


# Planning



The migration in November 2021 will be a 'big bang': on Friday November 19th, 2021, everybody will communicate with TARGET2 via SWIFT, sending MT-messages in Y-copy mode, on Monday November 22nd, 2021, everybody will communicate with T2 (ESMIG) via SWIFT or SIA/Colt, sending ISO20022-messages in V-shape mode, and everybody will have a new account structure.

# Who needs to be ready?



# What are the consequences of not being ready

A participant who is **not ready** to go-live on 22 November 2021 will:

- Not be able to settle Central Bank monetary policy operations.
- Not be able to pay or to be paid in Central Bank money.
- Be cut from ancillary system settlement in Central Bank Money.
- Need to access payment services through another counterparty.

# What are the main challenges for each participant

## Technical readiness:

- Assess required adaptations of IT infrastructure (software and hardware).
- Update interfaces.
- Implement ISO20022 for messaging.
- Set-up connectivity.
- Perform internal testing.

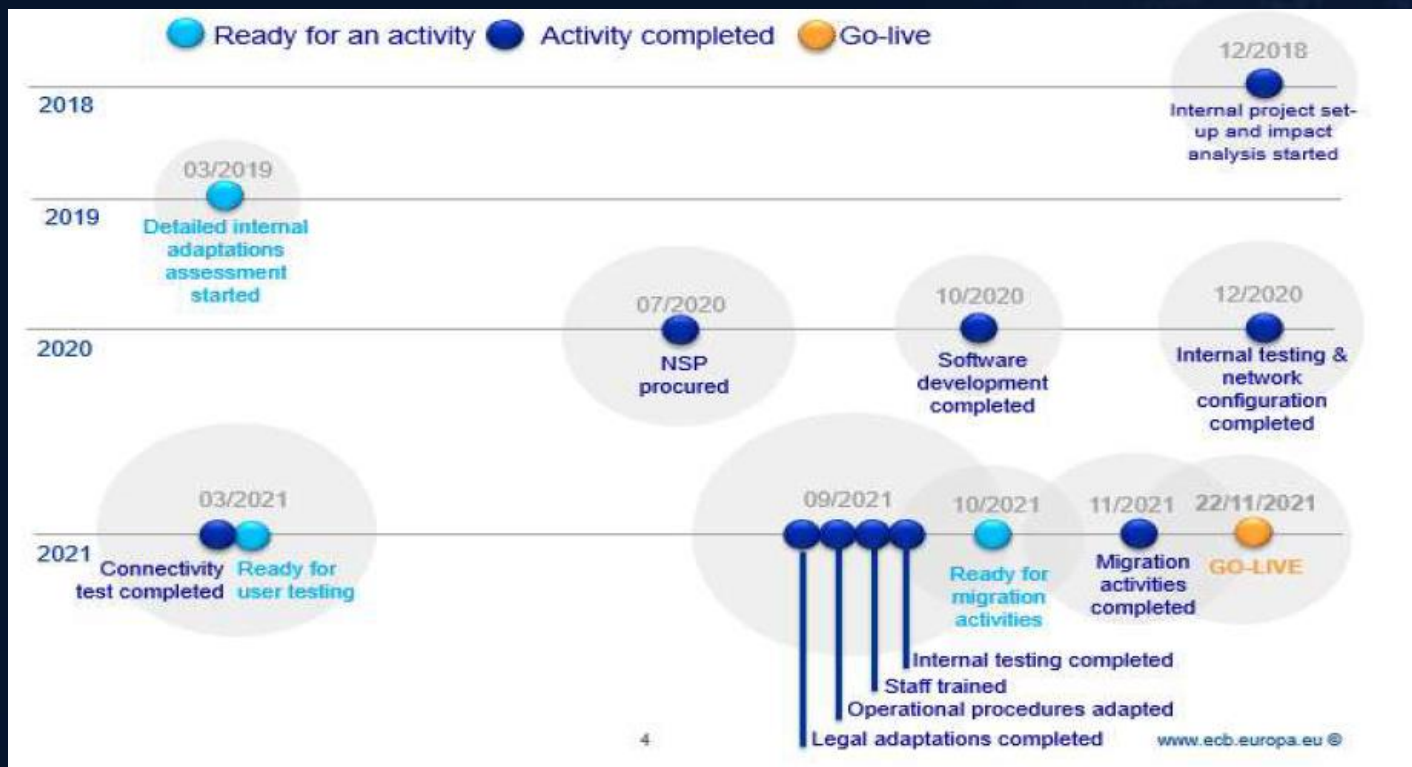
## Business and operational readiness:

- Assess business impact.
- Align business model and processes.
- Define operational procedures.
- Prepare legal arrangements.
- Procure network service provider.
- Train staff for testing, migration and operations.
- Perform connectivity and user testing.
- Prepare for and participate to migration rehearsals.

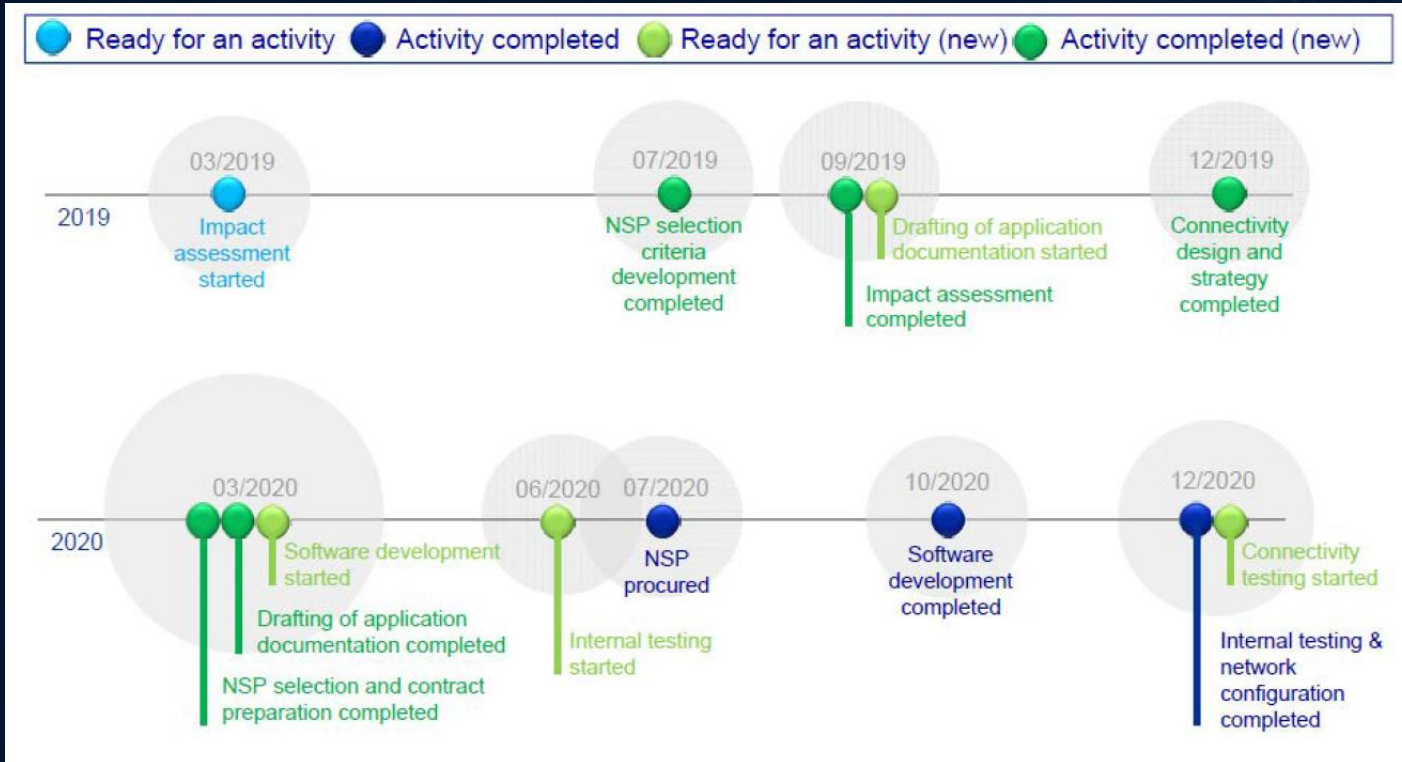
# Client Readiness Framework to mitigate risks of 'big bang'

- Regular Client Readiness Questionnaires from Central Banks to be completed by participants (see next sheets with milestones for participants).
- Training sessions ('train the trainer' principle) in 2020.
- Extensive user testing in 2021.
- Several Migration Weekend Dress Rehearsals in 2021.
- Information sessions, newsletters.
- T2/T2S Consolidation Contact Group (TCCG) on Eurosystem level, with bi-monthly meetings.
- A TCCG-NL for the 'closely monitored participants' of DNB, with regular meetings linked to the TCCG.
- Bilateral meetings.
- Close cooperation with DNB-Supervision and DNB-Oversight.

# Main tasks and milestones for participants



# Additional milestones



# Timing Client Readiness Questionnaires

DNB PUBLIC

Milestone	Code	Distribution of data collection template	Deadline to meet milestone	Data collection deadline
New connectivity design strategy and planning completed	NSP2	17-12-2019	31-12-2019	14-1-2020
Drafting of internal applications documentation completed; Software development for the required adaptation changes to T2 started; Network service provider selection and contractual preparation completed	IAD4, IAD5, NSP3	17-3-2020	31-3-2020	14-4-2020
Testing of internal applications started	IAD7	17-7-2020	30-6-2020	14-8-2020
Network service provider procurement is completed	NSP4	17-7-2020	31-7-2020	14-8-2020
Software development for the required adaptation changes to T2 completed	IAD6	19-10-2020	31-10-2020	13-11-2020
Testing of internal applications is completed; network connectivity tests are started	IAD8, NCO1	17-12-2020	31-12-2020	14-1-2021
Network connectivity tests are completed and user testing activities are ready to start	NCO2	12-2-2021	28-2-2021	12-3-2021
User testing activities are completed; Contractual and legal adaptations are completed; Internal staff training is completed; Operational procedure adaptations are completed	UTA, CLA, IST, OPA	16-9-2021	30-9-2021	15-10-2021
Migration activities on production environment are ready to start	MAP	16-9-2021	1-10-2021	15-10-2021
Migration activities are completed	MAE	22-10-2021	5-11-2021	12-11-2021
Go-live of T2 service (first business day)	GLI	22-10-2021	22-11-2021	29-12-2021



# Readiness

- A Eurosystem questionnaire on Software Vendors used will follow shortly in order to receive an insight into the actual Vendors involved.
- The next readiness reporting has been sent; feedback is required before 14-01-2020.
- On 23 Januari 2020 a Focus Session will take place at the ECB.  
(Details and registration via [ECB > Payments & Markets > About > Events](#))  
Main topic the Consolidation – also presentations and market place for NSPs and companies who can support in the preparation for the migration to ISO 20022.

# Further information

- Further information about the T2/T2S Consolidation can be found on ECB-website (and early next year also on DNB-website):

<https://www.ecb.europa.eu/paym/target/consolidation/profuse/html/index.en.html>

- UDFS 2.1 – 20 December 2019:
  - Components for T2:
    - CLM
    - RTGS
  - Common components for TARGET Services:
    - Billing
    - Business Day Management
    - Common Reference Data Management
    - Datawarehouse
    - Enhanced Contingency Solution (ECONS2).
    - ESMIG
- User Handbook 1.0 – around June 2020.
- National Service Desk TARGET2-NL: [target2@dnb.nl](mailto:target2@dnb.nl)



**QUESTIONS**

**ANSWERS**



# Central Liquidity Management (CLM)

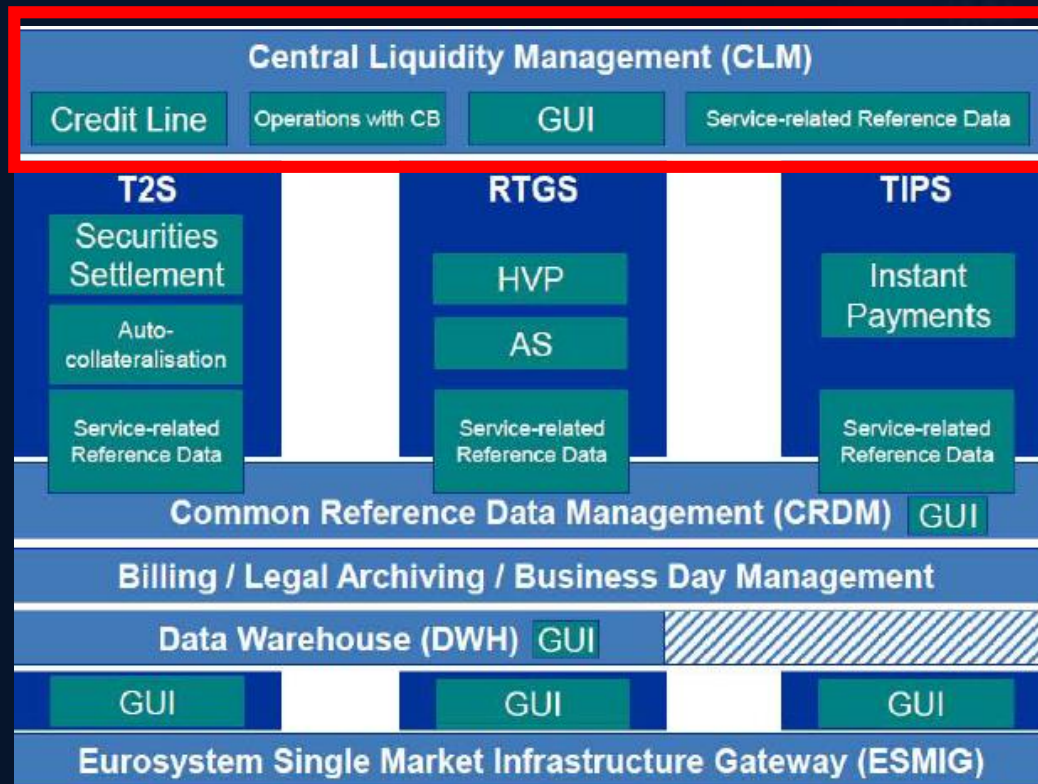
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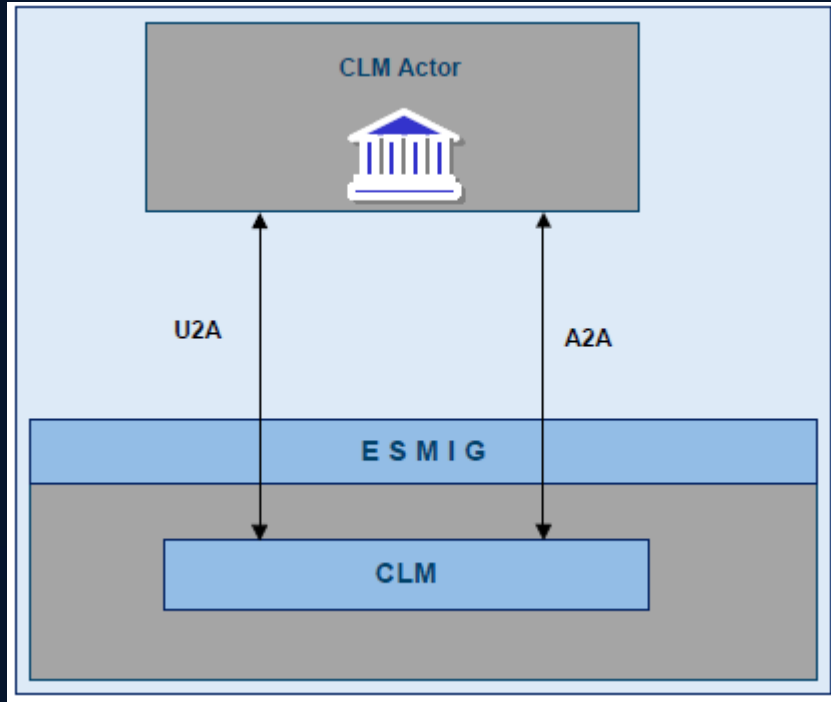
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# TARGET Services Functional Model



# Access to CLM



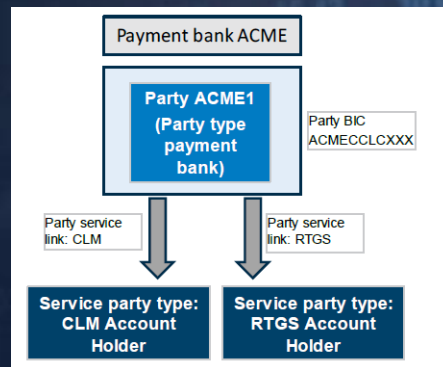
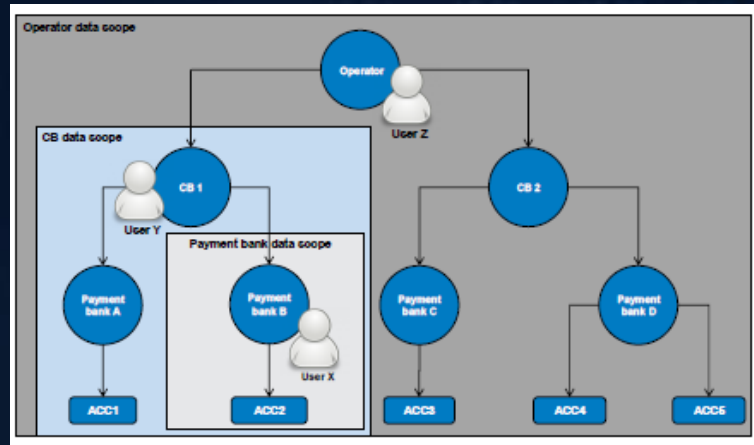
- The A2A supports the following connectivity modes:
  - Store and forward, message based.
  - Store and forward, file based.
  - Real-time, message based.
  - Real-time, file based.
- U2A only option is also possible.
- A Distinguished Name (DN) identifies an individual or application interacting with CLM. DNs are uniquely linked to digital certificates.
- Users are linked to DNs, roles (set of privileges) and privileges are assigned to users.
- Outbound routing is based on a technical address, which consists of three items:
  - A technical receiver name which is represented by a DN.
  - A network service provider.
  - A channel (real-time or store and forward).

CLM business data exchanges	Inbound communication request	Outbound communication response
Instructions	Store and forward message-based, store and forward file-based	Store and forward message-based, store and forward file-based
Queries	Real-time message based, real-time file-based	Real-time message-based, real-time file-based. In case of time-out and oversize: store and forward message-based, store and forward file-based.
Reports	N/A	Store and forward message-based, store and forward file-based
Notifications	N/A	Store and forward message-based, store and forward file-based



# Parties

- The party model is based on a hierarchical three-level structure:
  - The 'operator' is the first level of the hierarchy and is responsible for the set-up of the parties of the second level.
  - The 'Central Banks' are the parties at the second level, and responsible for the set-up of all parties of its community, i.e the payment banks and the ancillary systems.
  - The payment banks and the ancillary systems are the parties on the third level.
- The data-scope of the operator is the whole system, the data-scope of a Central bank is its own community, and the data-scope of a payment bank or ancillary system is its own data.
- Via the 'Party Service Link' it is indicated in which T2-services a party participates.



# Account types

Account types in CLM:

- Main Cash Accounts (MCAs).
- CLM dedicated transit accounts.
- CLM CB Accounts.
- Overnight deposit accounts.
- Marginal lending accounts.
- CB ECB accounts.
- ECB mirror accounts.

# Main Cash Account (MCA)

- An MCA is an account used for the settlement of Central Bank Operations and liquidity transfers, as well as the management of the credit line.
- An MCA in CLM is identified by a BIC-11 (that must be unique within CLM) and also by an account number (that must be unique across all settlement services).
- In case of settlement of credit transfers and direct debits, the CLM account holder's MCA is identified by a unique BIC-11.
- In case of liquidity transfers, the CLM account holder's MCA is identified by the account number.

# Scope of Operations of the Main Cash Account (MCA)

The default MCA of a party is the only account on which the following operations are processed:

- Holding of minimum reserves. For this the balances of all MCAs and linked DCAs of a MFI are taken into account.
- Credit line management.
- Standing facilities of counterparties (i.e. marginal lending on request and overnight deposits) as well as automatic marginal lending. For the automatic marginal lending the balance of the MCA and connected DCAs are taken into account.
- Monetary policy operations.
- Debiting of billing amounts.
- Interest payment orders linked to the marginal lending, overnight deposits, minimum reserves and excess reserves.
- Penalties related to minimum reserves.

The following operations are processed on any MCA:

- Cash withdrawals and cash deposits.
- Liquidity transfers with linked DCAs (RTGS-DCA(s), T2S-DCA(s), TIPS-DCA(s)) and other MCAs (within the same group).

No payments between market participants are allowed on a MCA. For this RTGS-DCAs are needed.

# Functionalities on MCA-level

- Direct debit mandate for Central Banks, no prior definition of mandate is needed.
- Floor/ceiling: the CLM-accountholder can choose how CLM shall respond in case the floor or ceiling amount is breached:
  - Send a notification in either A2A or U2A.
  - Generate a liquidity transfer to pull or push cash from/to the linked RTGS DCA.
- Co-management.
- Standing order for reservation.
- Current reservation.
- Message subscription.
- Report configuration.
- Routing configuration.
- Blocking/unblocking account.

# Message subscription

The following outgoing messages for CLM are subject to message subscription:

- SystemEventNotification (admi.004).
- ReturnBusinessDayInformation (camt.019).
- BankToCustomerDebitCreditNotification (camt.054).
- PaymentStatusReport (pacs.002) (except mandatory notification on negative processing results).

# Types of groups

- *Banking group*: an optional group of parties for pure liquidity monitoring purposes of Central Banks.

- *Liquidity transfer group*: an optional grouping of MCAs.

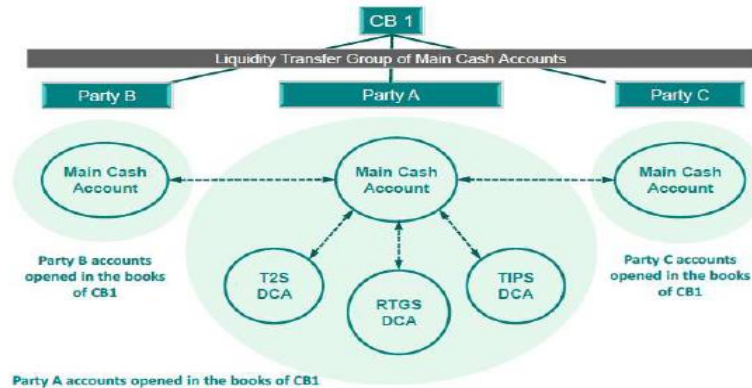


Figure 4: CLM for a group of banks

- *Account monitoring group*: an optional clustering of accounts (MCAs en DCAs) for pure liquidity monitoring purposes, they are not used in the context of payment orders or liquidity transfer orders settlement between accounts in the same group.

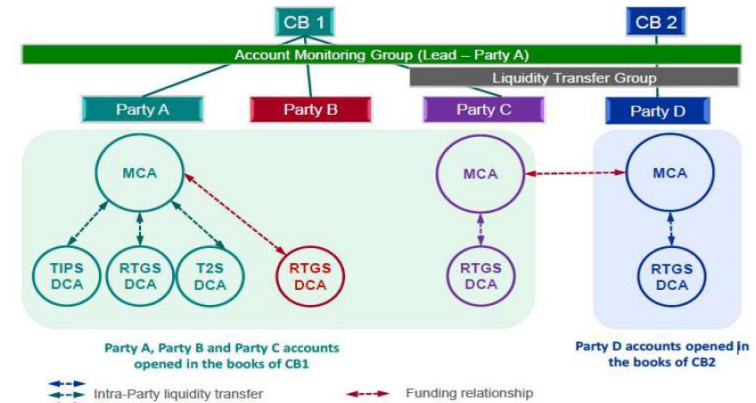
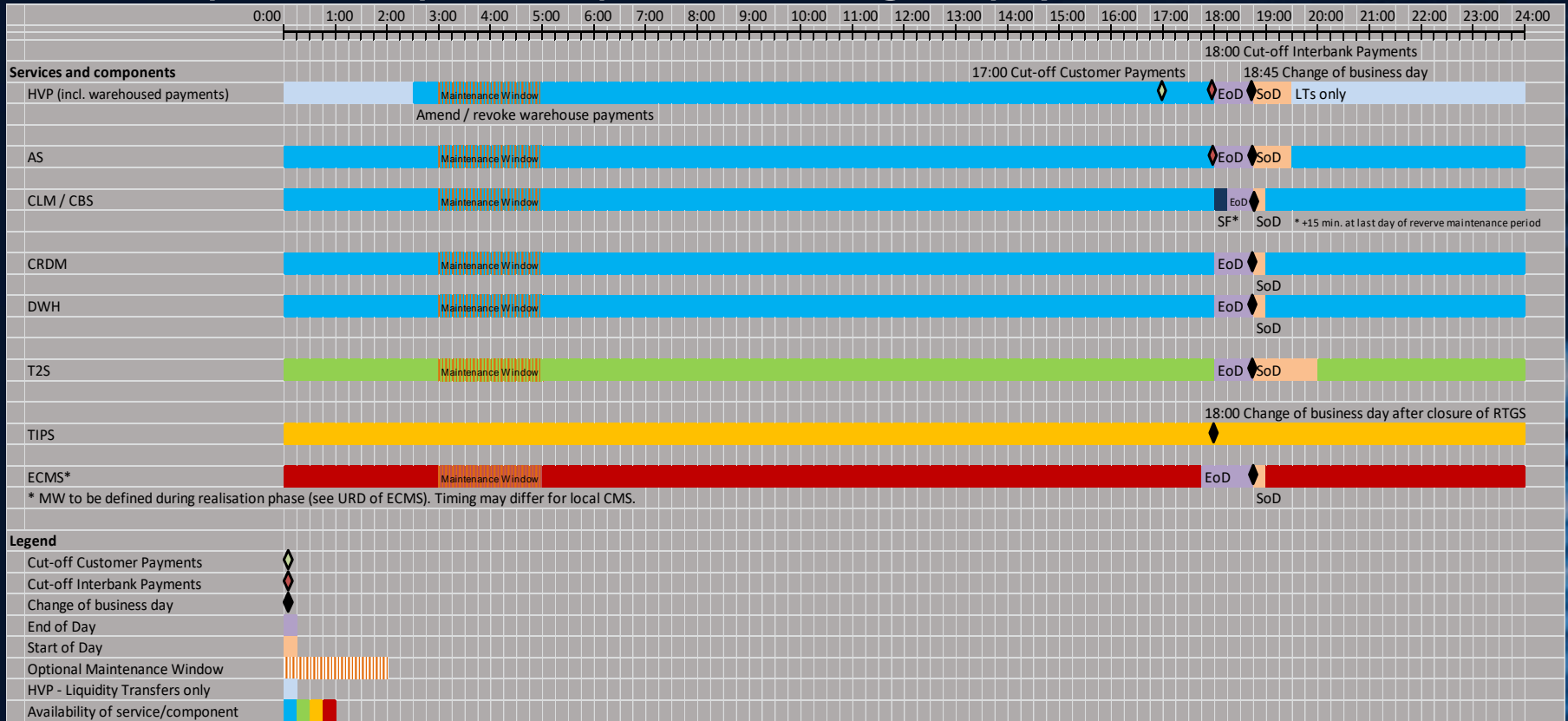


Figure 6: Multinational Account Monitoring Group

# Business day schedule (Tuesdays, Wednesdays, Thursdays, Fridays except T2 closing days)





# Maintenance window

- Optional maintenance window from 03:00 - 05:00 on Tuesdays, Wednesdays, Thursdays, Fridays (meaning no change to the T2S maintenance window), only activated when urgent maintenance is needed within the week
- Non-optional week-end maintenance window starting at 02:30 on Saturday mornings and ending at 02:30 on Monday mornings.

# Business day

## SOD (18:45 – 19:00):

- Change of business day
- Processing of standing order reservations.
- Revalidation of warehoused payments.

## RTS I (19:00 – 02:30):

- Reimbursement of marginal lending.
- Refunding of overnight deposit.
- Processing of automated liquidity transfers.
- Processing of standing order liquidity transfers.
- Processing of immediate liquidity transfers.
- Central Bank Operations.

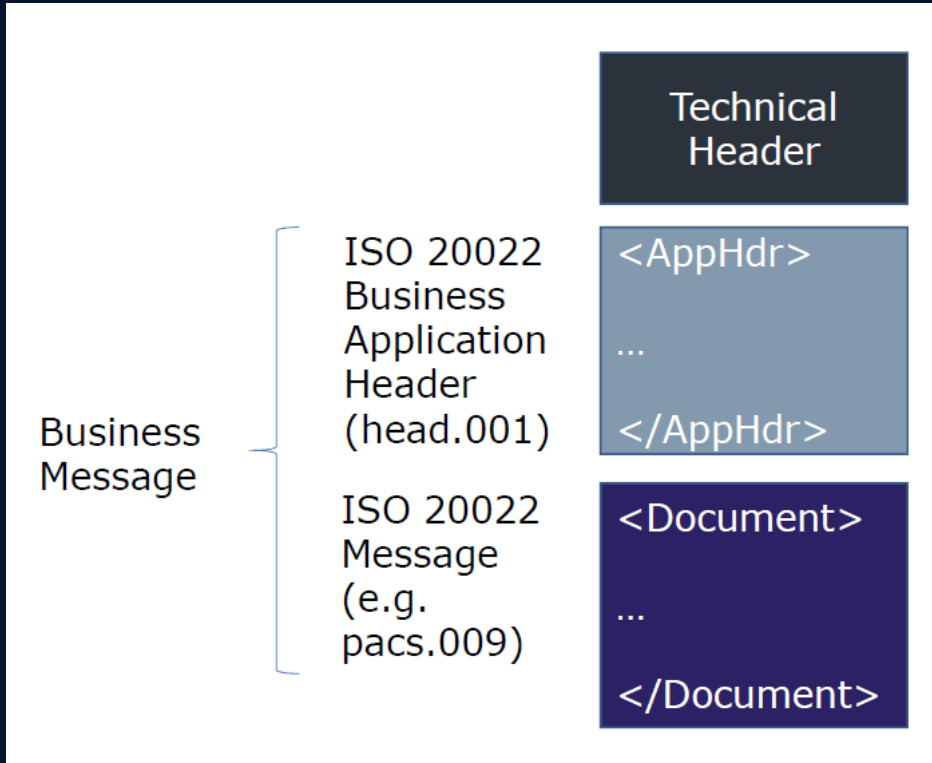
## RTS II (02:30 – 18:00):

- Central Bank Operations.
- Liquidity transfers.

## EOD (18:00 – 18:45):

- Automatic marginal lending.
- Minimum reserve processing.
- EoD reporting.

# File and message processing



Sender : DN of Bank A  
Receiver : DN of T2-CLM  
Service Name: Service Name of T2-CLM

From : BIC of Bank A  
To : BIC of Bank B  
Digital Signature of Business Sender

pacs.009 (only CB), pacs.010 (only CB), or camt.050

# Example of Business Application Header (BAH)

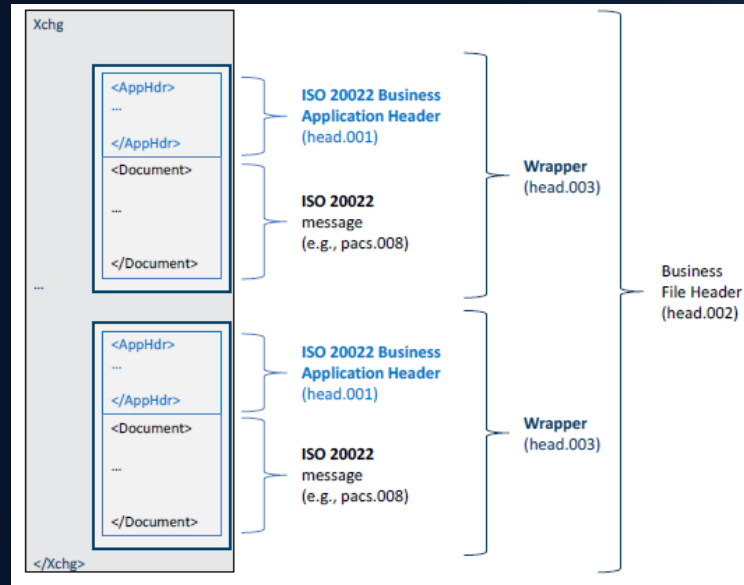
```
<?xml version="1.0" encoding="UTF-8"?>
<AppHdr xmlns="urn:iso:std:iso:20022:tech:xsd:head.001.001.01">
  <Fr>
    <FIId>
      <FinInstnId>
        <BICFI>NCBPARTYBIC</BICFI>
        <Othr>
          <Id>NCBPARTBIC</Id>
        </Othr>
      </FinInstnId>
    </FIId>
  </Fr>
  <To>
    <FIId>
      <FinInstnId>
        <BICFI>RECEIVERBIC</BICFI>
        <Othr>
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          <SchmeNm>
            <Cd>CODE</Cd>
          </SchmeNm>
        </Othr>
      </FinInstnId>
    </FIId>
  </To>
  <BizMsgIdr>SENDERREFERENCE</BizMsgIdr>
  <MsgDefIdr>pacs.002.001.09</MsgDefIdr>
  <CreDt>2018-08-31T09:30:47Z</CreDt>
  <Sgntr>
  </Sgntr>
</AppHdr>
```

# Example of a ISO20022-message: FinancialInstitutionCreditTransfer (pacs.009)

```
<?xml version="1.0" encoding="UTF-8"?>
<Document xmlns="urn:iso:std:iso:20022:tech:xsd:pacs.009.001.07">
  <FICdtTrf>
    <GrpHdr>
      <MsgId>MSGIDpacs.009</MsgId>
      <CreDtTm>2018-08-24T09:30:44Z</CreDtTm>
      <NbOfTxs>1</NbOfTxs>
      <SttlmInf>
        <SttlmMtd>CLRG</SttlmMtd>
      </SttlmInf>
    </GrpHdr>
    <CdtTrfTxInf>
      <PmtId>
        <InstrId>INSTRIDpacs.009</InstrId>
        <EndToEndId>NOTPROVIDED</EndToEndId>
        <TxId>TXIDpacs.009</TxId>
      </PmtId>
      <IntrBkSttlmAmt Ccy="EUR">1000000</IntrBkSttlmAmt>
      <IntrBkSttlmDt>2018-08-24</IntrBkSttlmDt>
      <SttlmPrty>NORM</SttlmPrty>
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      </InstgAgt>
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  </FICdtTrf>
</Document>
```

# File and message processing

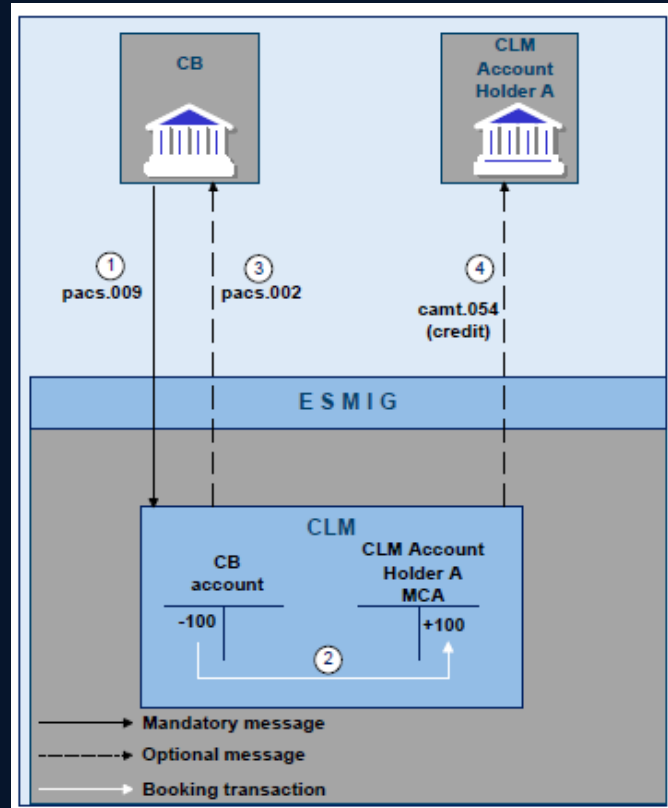
- CLM supports inbound files, therefore it is possible for a participant to send a file composed of several messages.
- In that case also a BusinessFileHeader (head.002) is needed. This contains information about the sender of the file and the number of included messages.



# CLM message types

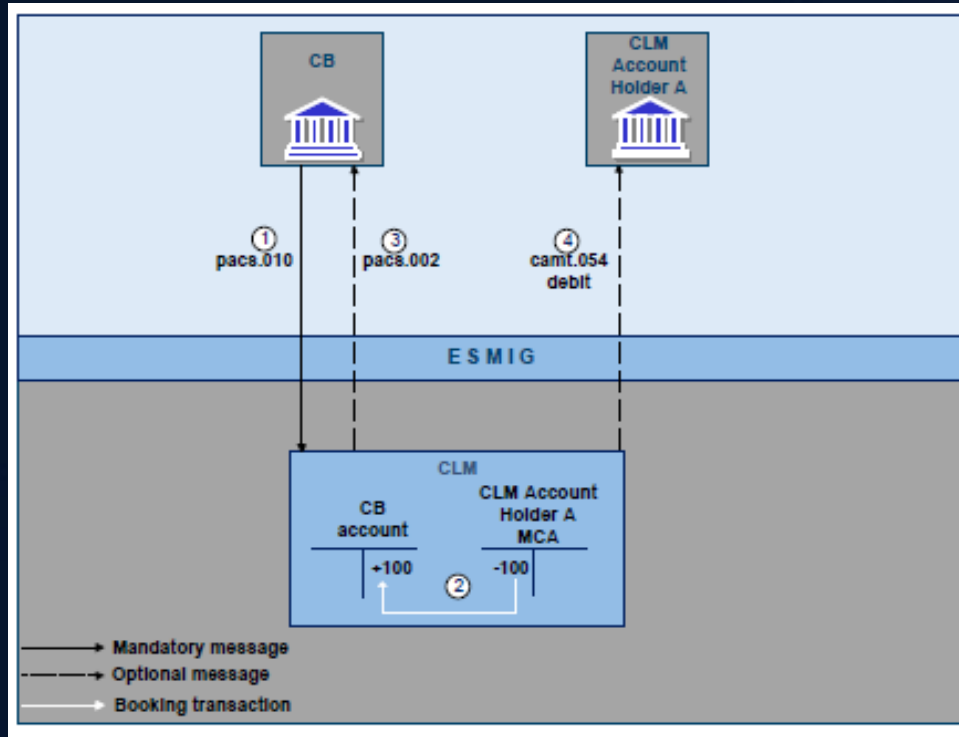
CBO type	Initiation via	Message
Update of credit line	A2A or U2A as task queue order	ModifyCreditLine (camt.998)
	Connected payment	FinancialInstitutionCreditTransfer (pacs.009)
FinancialInstitutionDirectDebit (pacs.010)		
Standing facilities orders for: - Marginal lending on request - Overnight deposits	Liquidity transfer order	LiquidityCreditTransfer (camt.050)
Linked to standing facilities: - Automatic marginal lending - Marginal lending reimbursement - Overnight deposit refund	Triggered automatically	-
Debits of the invoiced amount	Payment order with direct debit order	FinancialInstitutionDirectDebit (pacs.010)
Payment orders for: - Cash withdrawals and deposits - Monetary policy operations	Payment order with direct debit order	FinancialInstitutionDirectDebit (pacs.010) FinancialInstitutionCreditTransfer (pacs.009)

# Payment orders initiated by Central Bank – credit transfer order





# Payment orders initiated by Central Bank – direct debit order



# Rejection of cash transfer orders

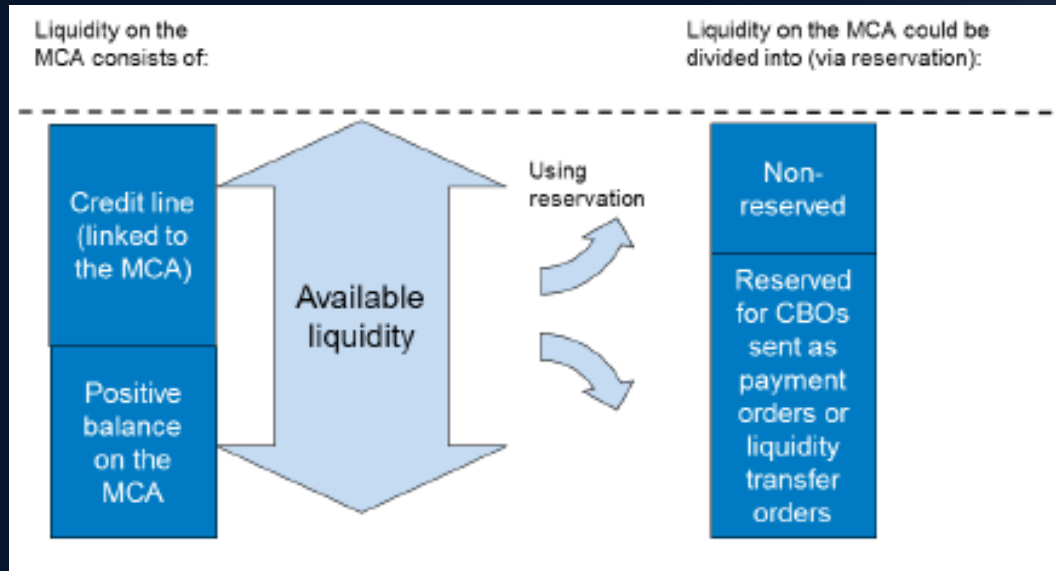
- After the reception of a message or file, CLM will first perform a technical validation. In case of error(s) CLM will reply via an adm.007 (ReceiptAcknowledgement).
- In case the business validation in CLM fails, CLM creates the following notifications:
  - Reject notification (PaymentStatusReport (pacs.002)) to the submitting actor of the payment order (pacs.009 or pacs.010).
  - or
  - Reject notification (Receipt (camt.025)) to the submitting actor of the liquidity transfer order not yet settled.

# Modification and revocation of payment orders

- Payment orders not yet settled can be modified (by Central Banks) in U2A only.
- The following different types of modifications are possible:
  - Re-ordering within the respective queue (i.e. move to top or end of the queue).
  - Change of execution time.
- Payment orders not yet settled can also be revoked by Central Banks. This can either be done in U2A or A2A mode (FIToFIPaymentCancellationRequest (camt.056), which will be replied with a ResolutionOfInvestigation (camt.029)).

# Available liquidity - reservation

- Liquidity on the MCA can be reserved for Central Bank Operations.
- Reservations can be created and/or modified in A2A (camt.048 ModifyReservation, camt.049 DeleteReservation) and U2A mode, either via standing orders or current orders.



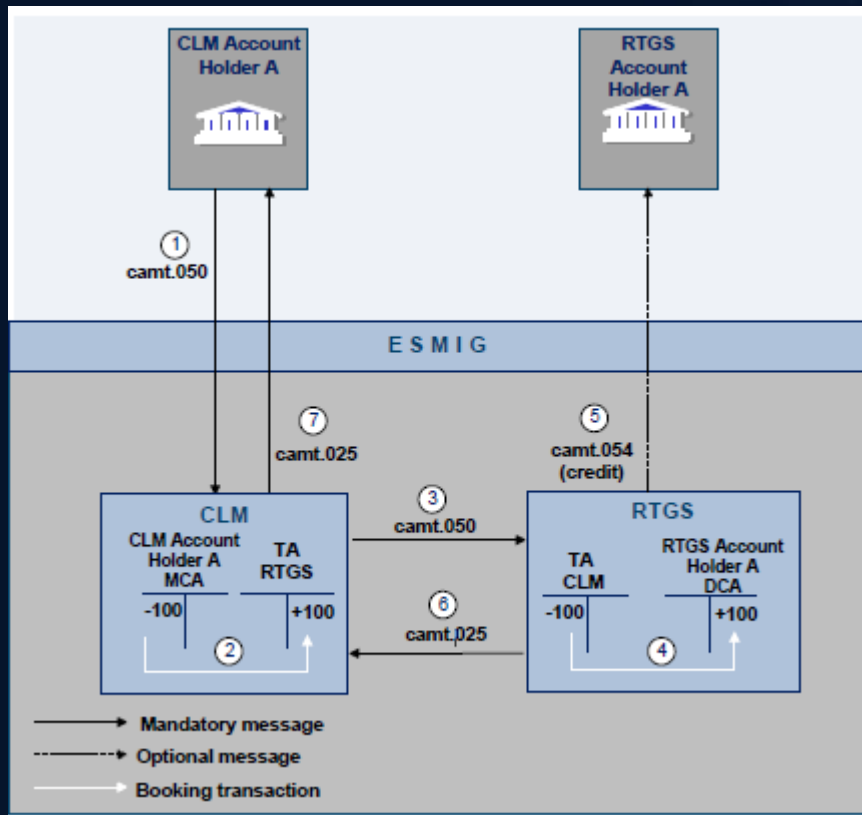
# Types of liquidity transfers

Liquidity transfer type	Description
Immediate liquidity transfer order	Immediate transfer of liquidity initiated by the account holder or another authorised CLM actor in A2A or U2A
Automated liquidity transfer order	Transfer of liquidity initiated by CLM sent to RTGS in order to transfer liquidity from the linked RTGS DCA due to a queued/pending CBO
Rule-based liquidity transfer order	Transfer of liquidity initiated by CLM towards a linked RTGS DCA due to a floor and/or ceiling rule
Standing order liquidity transfer order	Recurring transfer of liquidity processed every business day at certain business day events

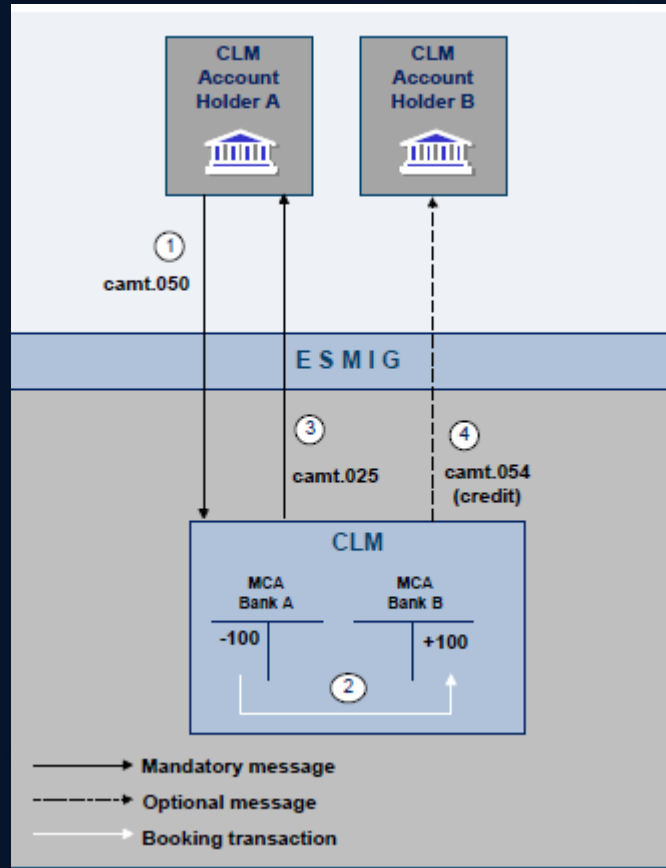
# Execution of liquidity transfers

Liquidity transfer type	Initiator	Frequency and trigger	Settlement
Immediate liquidity transfer order	CLM account holder (or authorised CLM actor)	Once immediately after the submission during operating hours	Only settlement if the full amount is possible, otherwise it is immediately rejected.
Automated liquidity transfer order	CLM	Automatically triggered whenever a CBO gets queued/pending in CLM	Partial settlement is possible. In case of partial settlement a new automated liquidity transfer order with the remaining amount is put on top of the queue until the total amount is completely settled.
Rule-based liquidity transfer order	Pre-configured in CRDM	Automatically triggered by every breach of a configured floor/ceiling rule.	Partial settlement is possible. In case of partial settlement no further settlement attempt is performed.
Standing order liquidity transfer order	Pre-configured in CRDM	Automatically triggered every business day at configured certain business day events	Partial settlement is possible. In case of partial settlement no further settlement attempt is performed. In case several standing order liquidity transfer orders are triggered at the same time, a pro rata execution applies.

# Immediate inter-service liquidity transfer from an MCA to any DCA in another settlement service

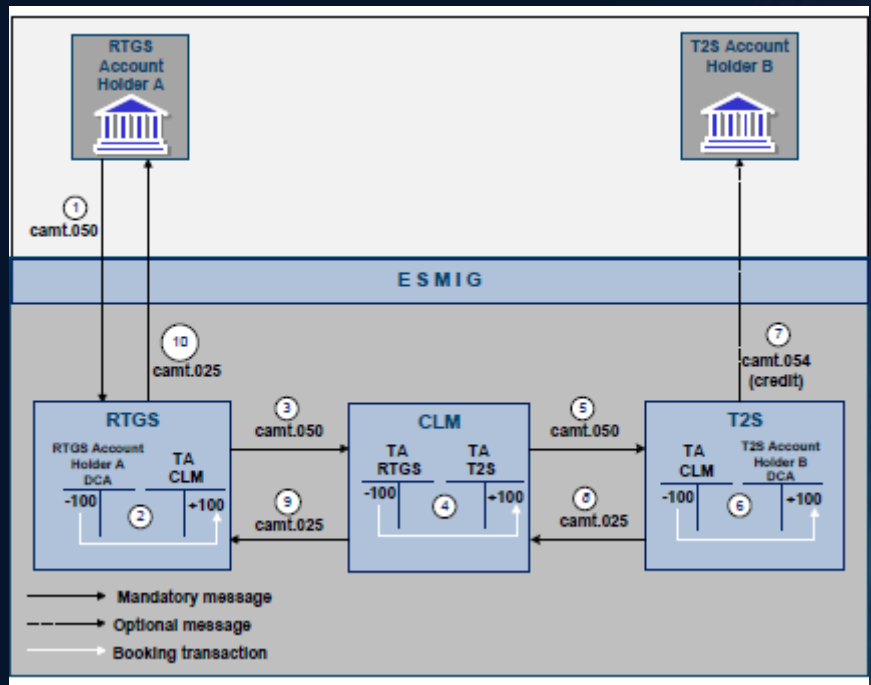


# Immediate intra-service liquidity transfer between two MCAs

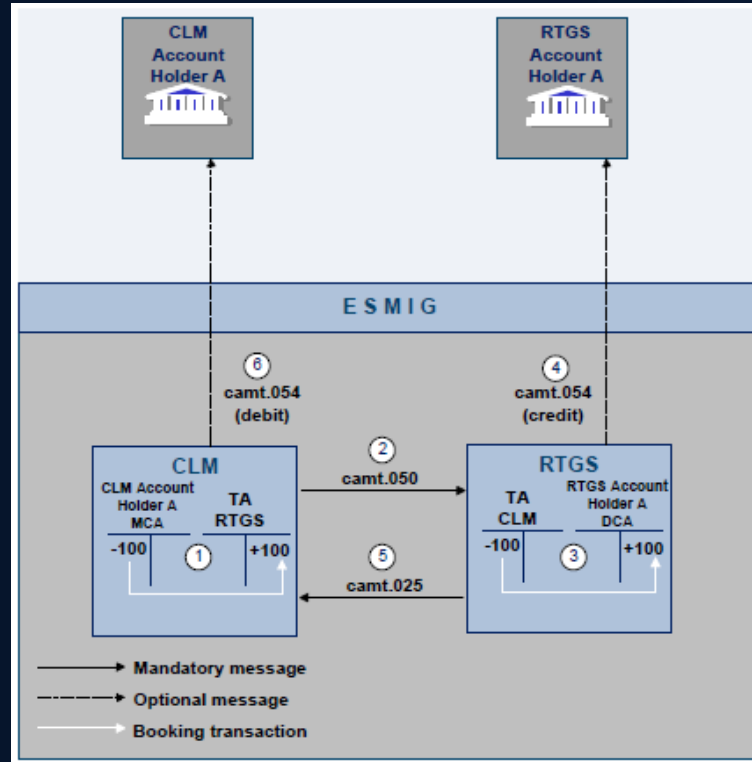




# Immediate inter-service liquidity transfer between two DCAs in different settlement services

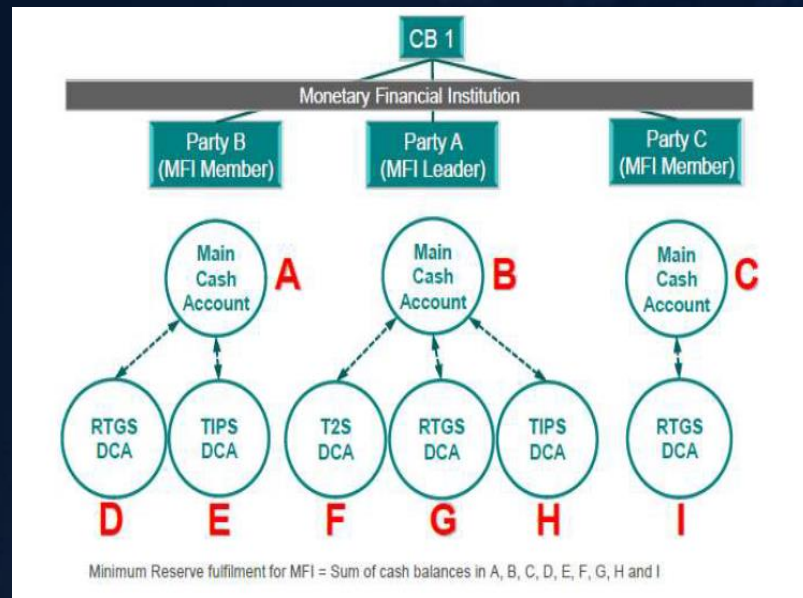


# System generated liquidity transfers



# Minimum reserve management

- For the fulfilment of the minimum reserve requirement, CLM takes all MCAs and DCAs of a MFI into account, during the EoD all services (RTGS, TIPS, T2S) send the balances to CLM.
- After having received all EoD-balances, CLM executes the following calculations for the current maintenance period on a daily basis:
  - Accumulation of balances.
  - Running average.
  - Adjustment balance.
- At the end of the maintenance period, CLM calculates:
  - The interest to be paid to each institution for the amount up to the minimum reserve requirement.
  - The penalties in case the running average during the maintenance period is lower than the minimum reserve requirement.
  - The excess reserve and the interest on the excess reserve.
- At the end of the maintenance period, CLM generates the payment orders related to the interest and penalties.



# Standing facilities management

- The marginal lending and overnight deposit accounts will be opened in CLM.
- Account holders can initiate overnight deposits via liquidity transfers (U2A or A2A) from their MCA to their overnight deposit accounts.
- Account holders can initiate marginal lending on requests via liquidity transfers from their marginal lending accounts to their MCA. Before the Euro-ECMS this will have to be initiated by the local Collateral Management System (i.e. ECMS for DNB).
- CLM will initiate automatic marginal lending via liquidity transfers. For this all balances of the MCA(s) and linked DCAs will be taken into account.
- CLM will calculate the interest regarding the overnight deposit and will automatically return the capital amount and the interest to the MCA at the start of the next business day.
- CLM will calculate the interest regarding the marginal lending and will automatically return the capital amount to and the the interest from the MCA at the start of the next business day.

# Query management for CLM

Query type	U2A	A2A	Query request message	Query response
Account statement query	X	X	ReportQueryRequest (admi.005)	BankToCustomerStatement (camt.053)
Audit trail for CLM query	X			
Available liquidity CLM query	X	X	GetAccount (camt.003)	ReturnAccount (camt.004)
Available liquidity overall query	X			
Broadcast query	X			
Cash transfer query	X	X	GetTransaction (camt.005)	ReturnTransaction (camt.006)
Current reservations query	X	X	GetReservation (camt.046)	ReturnReservation (camt.047)
Event query	X	X	GetBusinessDayInformation (camt.018)	ReturnBusinessDayInformation (camt.019)
File query	X			
Message query	X			
Minimum reserve fulfilment query	X	X	GetAccount (camt.003)	ReturnAccount (camt.004)
System time query	X	X	GetBusinessDayInformation (camt.018)	ReturnBusinessDayInformation (camt.019)
Task queue query	X			



**QUESTIONS**

**ANSWERS**

# RTGS

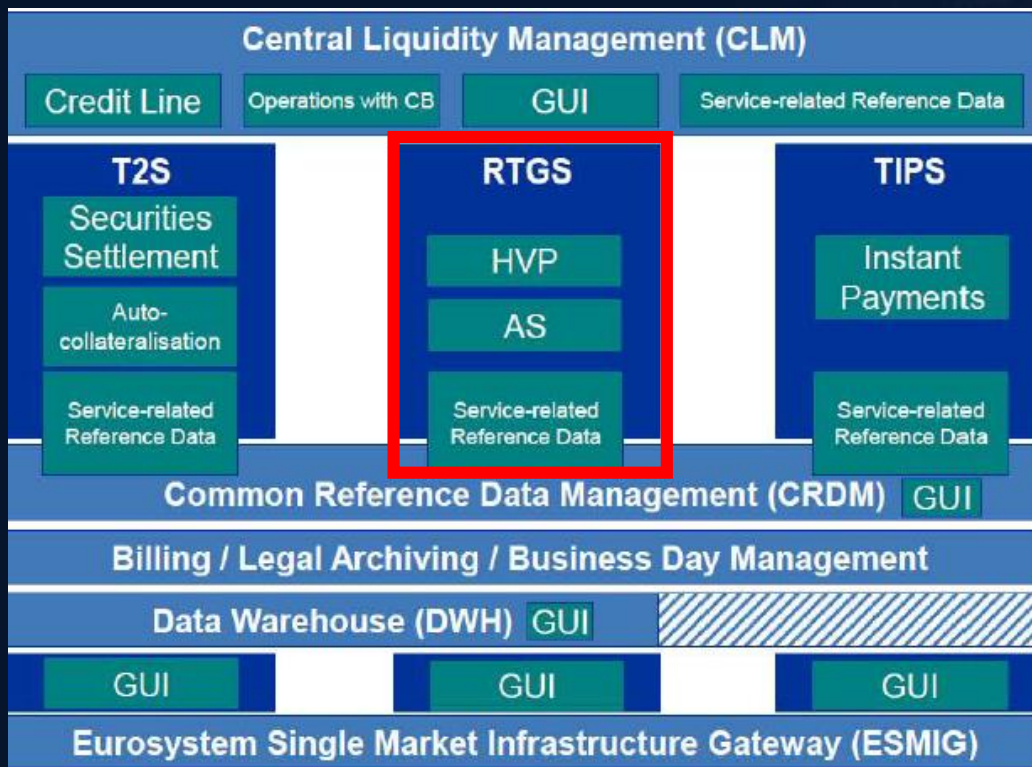
Erik Beunen

DeNederlandscheBank

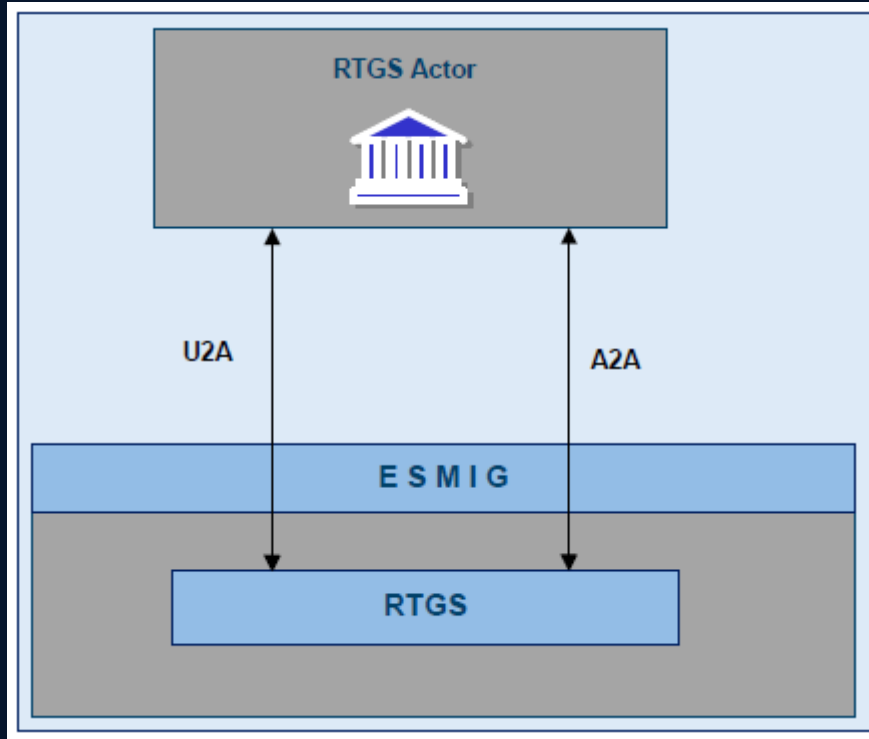
EUROSYSTEEM



# TARGET Services Functional Model







- The A2A supports the following connectivity modes:
  - Store and forward, message based.
  - Store and forward, file based.
  - Real-time, message based.
  - Real-time, file based.
- U2A only is also possible.
- A Distinguished Name (DN) identifies an individual or application interacting with RTGS. DNs are uniquely linked to digital certificates.
- Users are linked to DNs, roles (set of privileges) and privileges are assigned to users.
- Outbound routing is based on a technical address, which consists of three items:
  - A technical receiver name which is represented by a DN.
  - A network service provider.
  - A channel (real-time or store and forward).

# Access to RTGS

RTGS business data exchanges	Inbound communication request	Outbound communication response
Instructions	Store and forward message-based, store and forward file-based	Store and forward message-based, store and forward file-based
Queries	Real-time message based, real-time file-based	Real-time message-based, real-time file-based. In case of time-out and oversize: store and forward message-based, store and forward file-based.
Reports	N/A	Store and forward message-based, store and forward file-based
Notifications	N/A	Store and forward message-based, store and forward file-based

# Access to RTGS

The technical address of the receiver for a message sent by RTGS is derived as follows:

RTGS business data exchanges	Communication channel	Deduction of technical address
Notifications as response to instructions	Store and forward message	These are sent to the same network service and technical address which were used for sending the related instruction.
Notifications being not a response to an instruction but belonging to a business case triggered by an instruction (f.e. BankToCustomerDebitCredit Notification (camt.054))	Store and forward message	These are sent to the technical address that is defined in the routing configuration.
Payment orders and cancellation requests	Store and forward message	These are sent to the technical address which is derived from the addressed business parties (identified in the attribute <To>BIC located in the BAH of the message.
Responses to queries	Real-time message, real time file, in case of time-outs store and forward message, store and forward file	Responses are sent to the technical address of the sender of the query.
Reports	Store and forward file, store and forward message	These are sent to the technical address that is defined in the routing configuration

# Account types

Account types in RTGS:

- RTGS DCA.
- RTGS sub-account.
- RTGS dedicated transit account.
- RTGS CB account.
- AS guarantee funds account.
- AS technical account.

- An RTGS DCA is used for the settlement of real-time interbank and customer payments and AS transfers.
- An RTGS DCA can be dedicated for one or several ancillary systems.
- An RTGS DCA shall either have a zero or positive balance.
- An RTGS account holder may have several RTGS DCAs. Each of these RTGS DCAs is identified by a unique BIC-11 (in addition to different account numbers).
- It is possible to link more than one RTGS DCA to one MCA, however one of these RTGS DCAs has to be identified as the default one for rule-based and automated liquidity transfer orders.
- Each RTGS DCA may be linked to one or many Liquidity Transfer Groups and to one or many Account Monitoring Groups.

# Functionalities on RTGS DCA

- Direct debit mandate (also needed for Central Banks in case they want to instruct direct debits in RTGS).
- Floor/ceiling: the RTGS account holder can choose how RTGS shall respond in case the floor or ceiling amount is breached:
  - Send a notification in either A2A or U2A.
  - Generate a liquidity transfer to pull or push cash from/to the linked CLM MCA.
- Rule-based liquidity transfers due to queued payment orders or AS transfer orders.
- Standing order liquidity transfer order.
- Standing order for urgent or high reservations.
- Current reservation for urgent cash transfers and for high cash transfers.
- Standing order for bilateral (against one specific RTGS DCA) and multilateral limits (against all other RTGS-DCAs).
- Current limit(s).

# Functionalities on RTGS DCA - continued

- Message subscription.
- Report configuration.
- Routing configuration.
- Mandated payment for Central Bank
- Blocking/unblocking

# Message subscription

The following outgoing messages for RTGS are subject to message subscription:

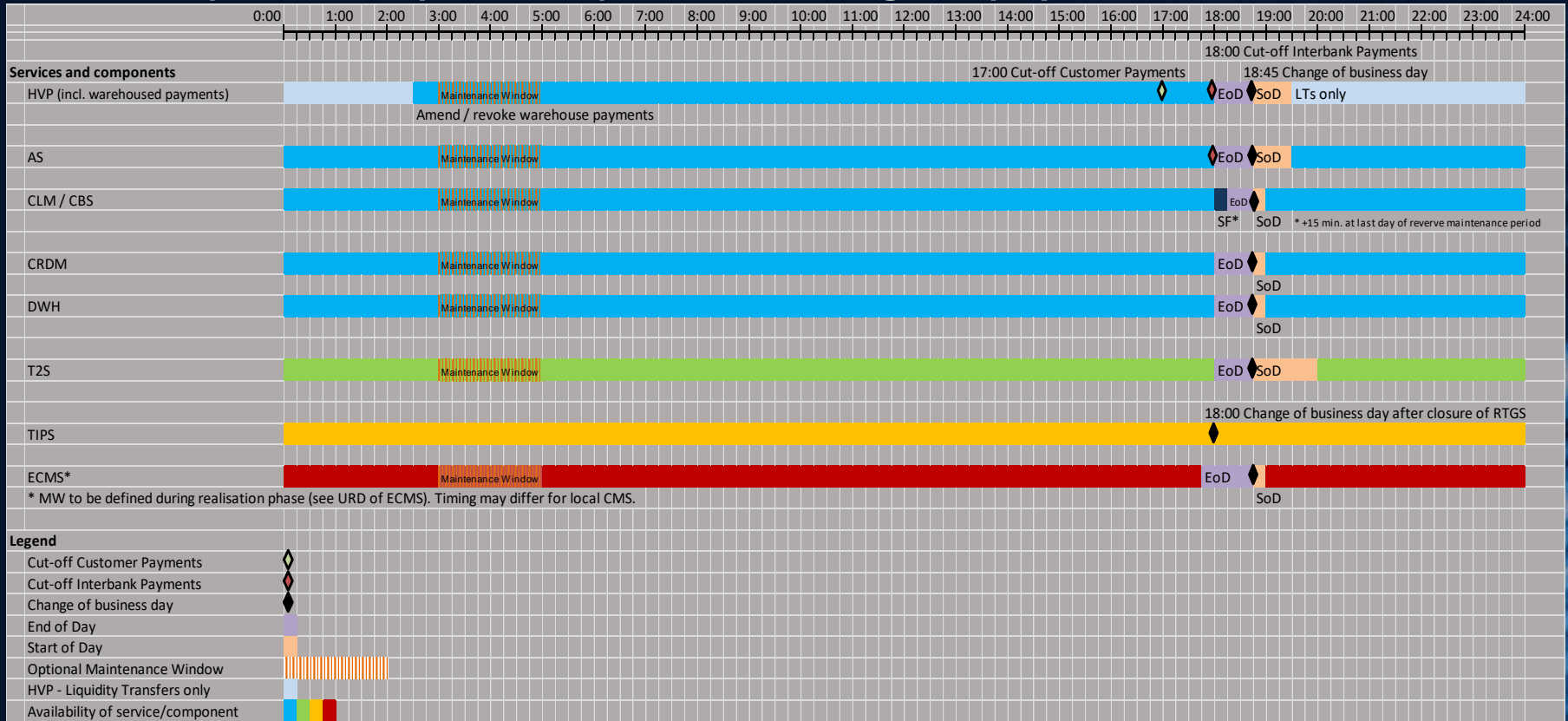
- SystemEventNotification (admi.004).
- ReturnBusinessDayInformation (camt.019).
- ResolutionOfInvestigation (camt.029) (only in case of succesfull forwarding of FiToFiPaymentCancellationRequest (camt.056)).
- BankToCustomerDebitCreditNotification (camt.054).
- PaymentStatusReport (pacs.002) (except mandatory notification on negative processing results).



# Types of groups

- Banking Group.
- Liquidity Transfer Group.
- Account Monitoring Group.
- Settlement Bank Account Group.  
A clustering of accounts used for ancillary system settlement, set up for settlement reasons, and not for monitoring of liquidity.

# Business day schedule (Tuesdays, Wednesdays, Thursdays, Fridays except T2 closing days)



# Business Day

## SOD (18:45 – 19:00):

- Change of business day
- Processing of standing order reservations and standing order limits.
- Revalidation of warehoused payments.

## RTS I (19:00 – 02:30):

- Settlement window for AS transfer orders.
- Processing of automatic liquidity transfers in RTGS.
- Processing of standing order liquidity transfers in CLM.
- Start of execution of standing order liquidity transfers in RTGS.
- Processing of rule-based liquidity transfers (in case of floor or ceiling breach).
- Processing of immediate liquidity transfers.
- Modification window for interbank and customer payment orders.

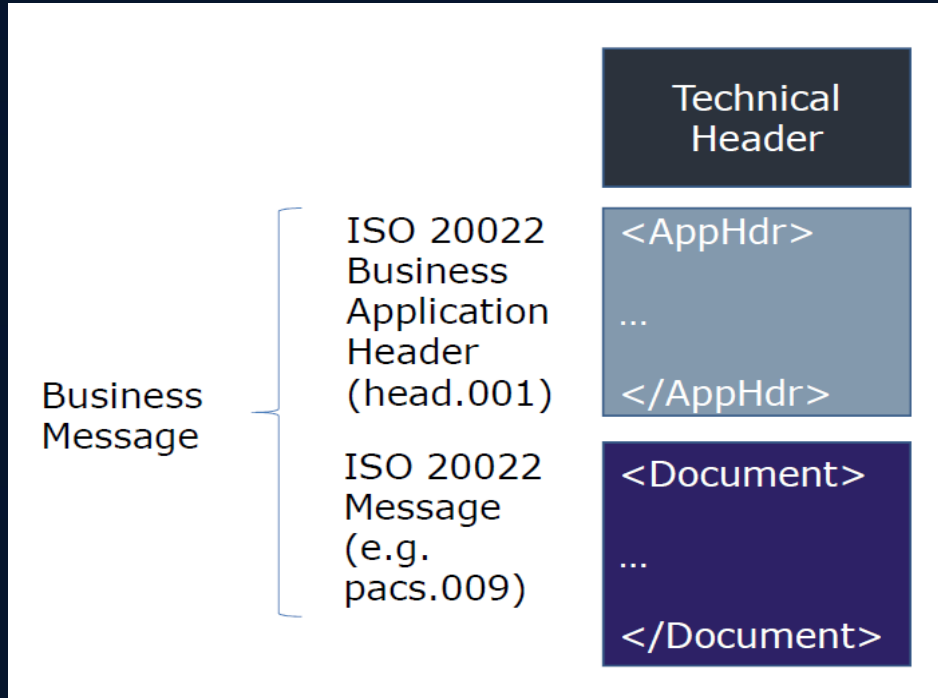
## RTS II (02:30 – 18:00):

- Settlement window for AS transfer orders.
- Settlement window for liquidity transfer orders.
- Settlement window for customer payment orders (02:30 – 17:00).
- Settlement window for interbank payment orders (02:30 – 18:00).

## EOD (18:00 – 18:45):

- EoD reporting.

# File and message processing



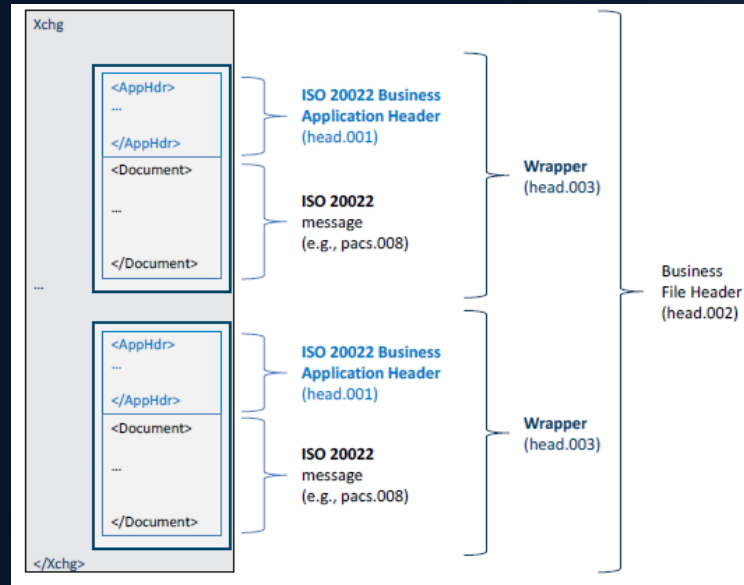
Sender : DN of Bank A  
Receiver : DN of T2-RTGS  
Service Name: Service Name of T2-RTGS

From : BIC of Bank A  
To : BIC of Bank B  
Digital Signature of Business Sender

pacs.004, pacs.008, pacs.009, pacs.010, camt.050 or camt.998

# File and message processing

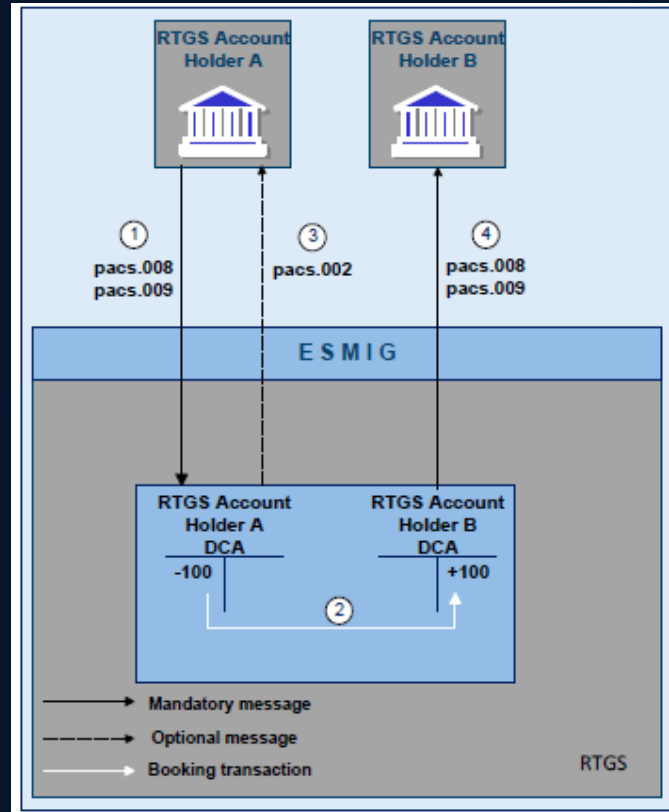
- RTGS supports inbound files, therefore it is possible for a participant to send a file composed of several messages.
- In that case also a BusinessFileHeader (head.002) is needed. This contains information about the sender of the file and the number of included messages.



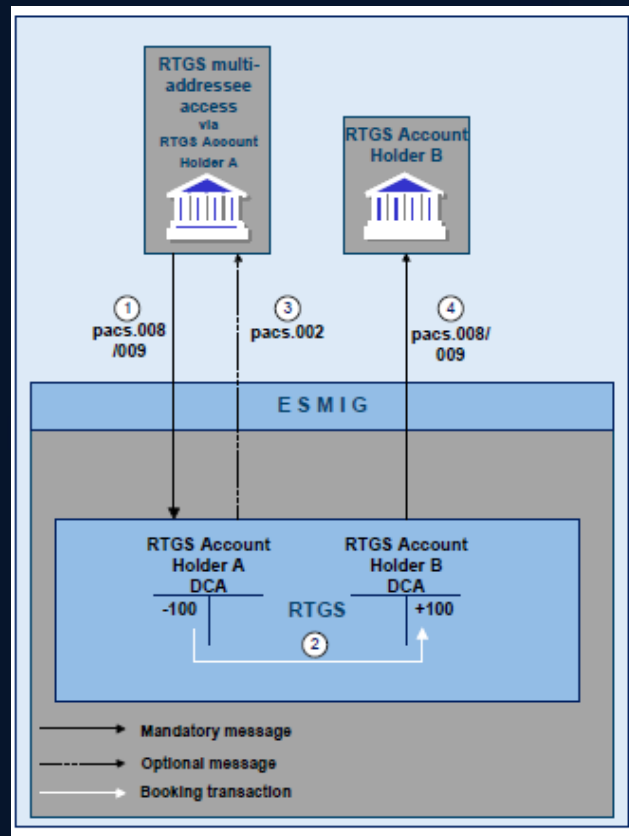
# RTGS cash order types

Cash transfer order	Cash transfer order type	Message Identifier	Message Name	Initiation via U2A possible?
Credit transfer order for a customer payment	Customer payment	pacs.008	CustomerCreditTransfer	Yes
Credit transfer order for a payment return	Interbank payment	pacs.004	PaymentReturn	No
Credit transfer order for an interbank payment	Interbank payment	pacs.009	FinancialInstitutionCreditTransfer	Yes
Direct debit order for an interbank payment	Interbank payment	pacs.010	FinancialInstitutionDirectDebit	No
Liquidity transfer order	Interbank payment	camt.050	LiquidityCreditTransfer	Yes
AS transfer order	AS transfer order	pain.998	ASTransferInitiation	No

# Payments from an RTGS account holder to another RTGS account holder

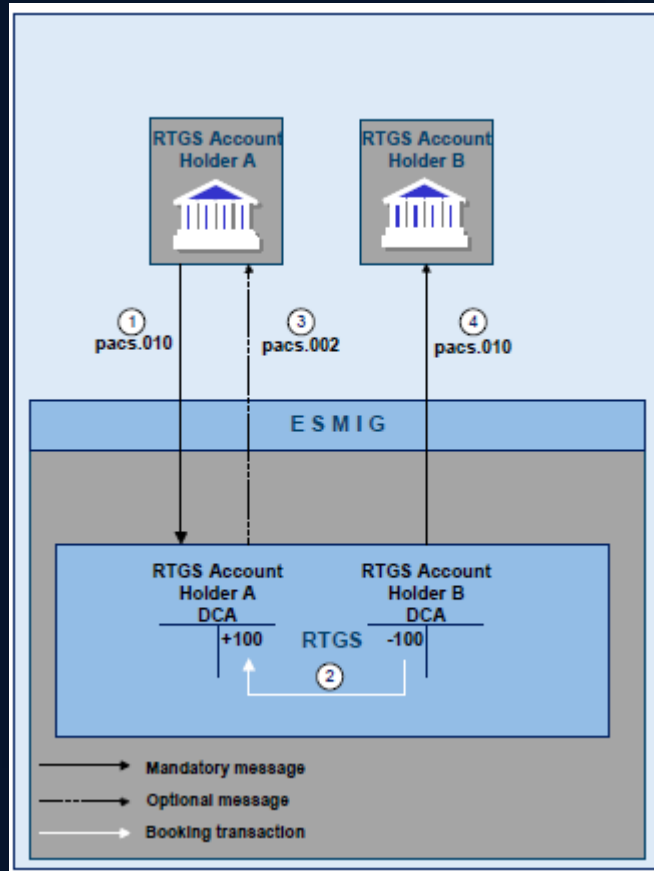


# Payments sent from an multi-addressee to an RTGS account holder

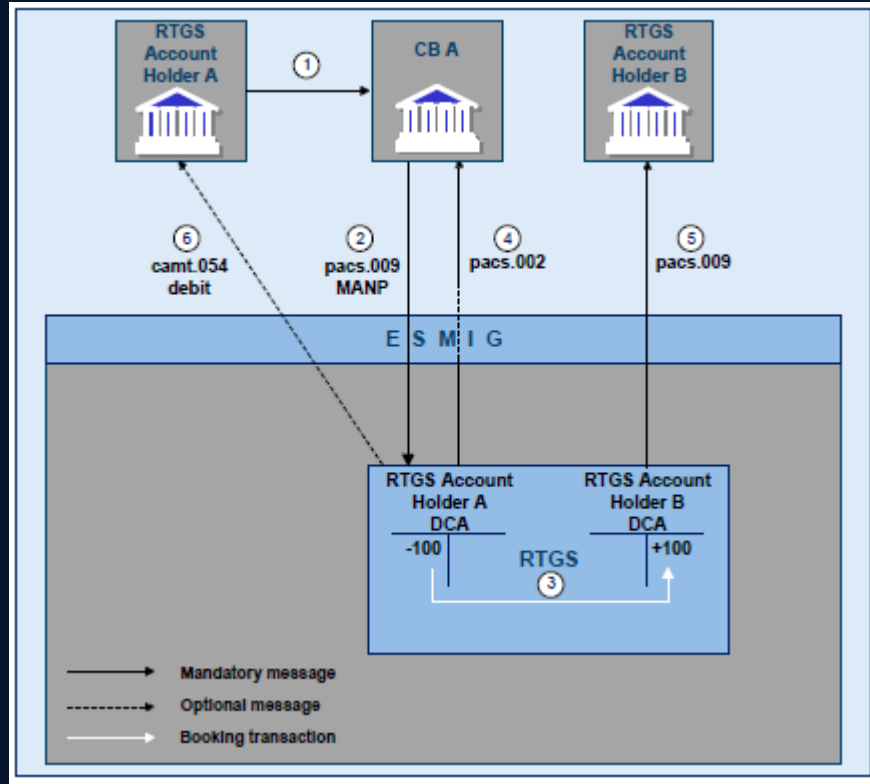




# Instructing direct debits



# Instructing mandated payments



# Cash transfer order priorities

Each cash transfer order in RTGS requires a priority for settlement:

- Urgent (for cash transfer orders this can only be assigned by a Central Bank).
- High.
- Normal.

Cash transfer order description	Message	Standard (default) priority	Allowed priorities
Credit transfer order for a customer payment	CustomerCreditTransfer (pacs.008)	Normal	High Normal
Credit transfer order for a payment return	PaymentReturn (pacs.004)	Normal	Normal
Credit transfer order for an interbank payment	FinancialInstitutionCreditTransfer (pacs.009)	Normal	Urgent High Normal
Direct debit order for an interbank payment	FinancialInstitutionDirectDebit (pacs.010)	Normal	Urgent High Normal
Liquidity transfer order	LiquidityCreditTransfer (camt.050)	Urgent	N/A
AS transfer order	ASTransferInitiation (pain.998)	Urgent	N/A

# Other functionalities

- Execution time – earliest debit time and/or latest debit time indicator.
- Warehoused payment orders – up to ten calendar days in advance of the date on which the payment order is to be executed.
- Back-up payments via the GUI.
- Back-up liquidity distribution payments via the GUI.

# Rejection of cash transfer orders

- After the reception of a message or file, RTGS will first perform a technical validation. In case of error(s) RTGS will reply via an adm.007 (ReceiptAcknowledgement).
- In case the business validation fails for a cash transfer order, RTGS will send an pacs.002 (PaymentStatusReport) for a cash transfer order.
- In case the business validation fails for an AS transfer order, RTGS will send an pain.998 (ASInitiationStatus).
- In case a latest debit time is defined in the payment order, 15 minutes prior to the rejection time RTGS will send an adm.004 (SystemEventNotification).

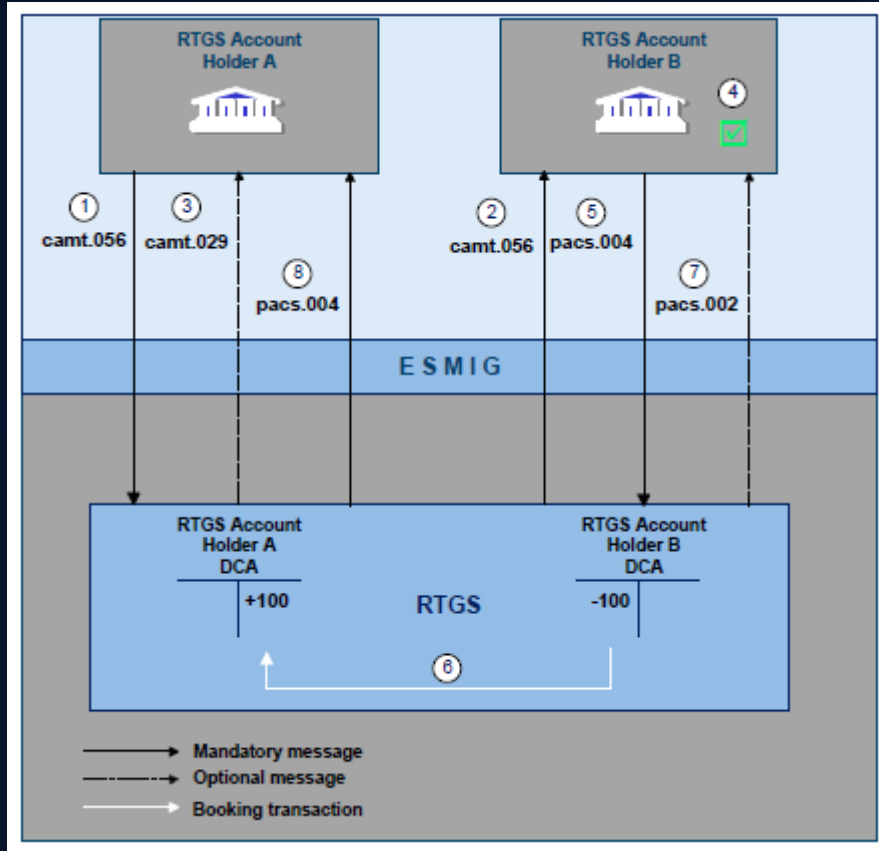
# Payment order modification

- As long as the payment order is not in a final status, an authorised RTGS actor has the possibility to modify specific parameters of the payment order:
  - Priority.
  - Re-ordering (increase/decrease) in queue.
  - Change of execution time.
- Payment order modification can be done in U2A and A2A-mode (ModifyTransaction (camt.007)).

# Payment order revocation and payment recall

- RTGS provides the functionality using a FiToFiPaymentCancellationRequest (camt.056) to:
  - Revoke a queued payment order.
  - Recall a settled payment.
- Via the U2A/GUI it is only possible to revoke a queue payment order, but not to recall a settled payment.
- The following types of queued payment orders can be revoked:
  - PaymentReturn (pacs.004).
  - CustomerCreditTransfer (pacs.008).
  - FinancialInstitutionCreditTransfer (pacs.009).
  - FinancialInstitutionDirectDebit (pacs.010).
- The following types of settled payments can be recalled:
  - CustomerCreditTransfer (pacs.008).
  - FinancialInstitutionCreditTransfer (pacs.009).

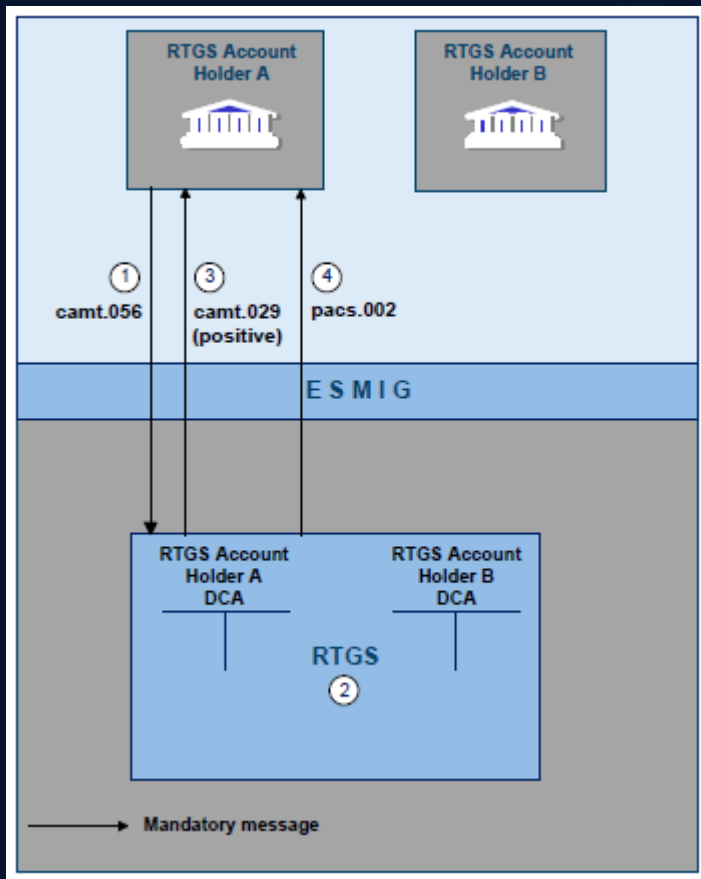
# Message flow for a positive payment order recall



In case RTGS Account Holder B rejects the recall-request in step 4, it will reply the camt.056 by a camt.029 in step 5. RTGS will forward this camt.029 to RTGS Account Holder A.



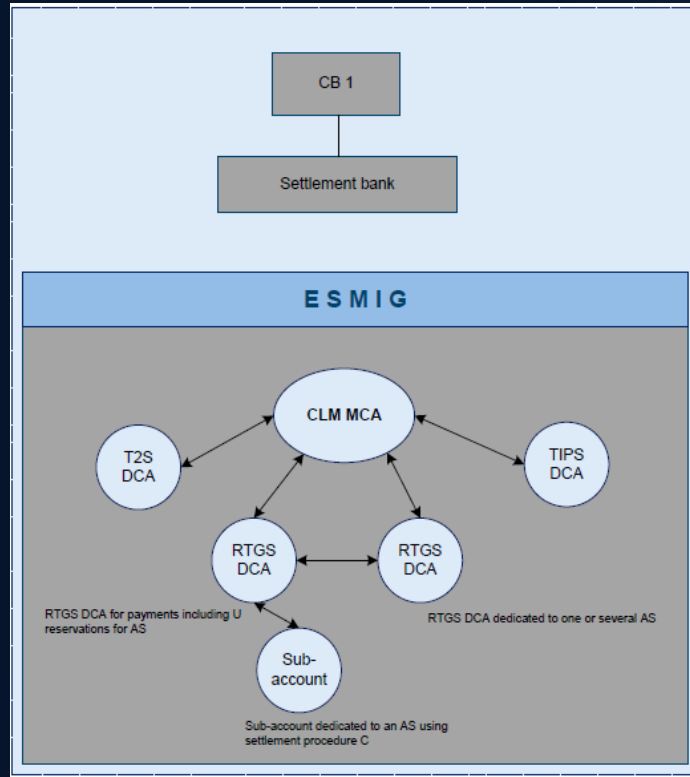
# Message flow for a successful revocation



# Ancillary system settlement – settlement procedures

Procedure	Description
AS settlement procedure A	This AS settlement procedure settles debits first. An ancillary system sends to RTGS both debit and credit AS transfer orders for settlement. RTGS must settle all debits before settling the credits.
AS settlement procedure B	This AS settlement procedure settles AS transfer orders on an all-or-nothing basis. An ancillary system sends to RTGS both debit and credit AS transfer orders for settlement. RTGS settles all debit and credit AS transfer orders simultaneously if possible. No settlement takes place when simultaneous settlement of all debit and credit AS transfer orders is not possible.
AS settlement procedure C	This AS settlement procedure settles AS transfer orders on sub-accounts. This AS settlement procedure allows an AS settlement bank to dedicate liquidity for the settlement of AS transfer orders from a specific ancillary system. The AS settlement bank achieves this by allocating the needed liquidity to a specific sub-account. AS settlement procedure C uses a mandatory procedure and allows ancillary systems to execute optional procedure(s).
AS settlement procedure D	This AS settlement procedure settles AS transfer orders (i.e. liquidity transfers) on a technical account. This AS settlement procedure allows an AS settlement bank to dedicate liquidity for the settlement of a specific ancillary system. The AS settlement bank achieves this by allocating the needed liquidity to the respective AS technical account. AS settlement procedure D uses a mandatory procedure.
AS settlement procedure E	This AS settlement procedure performs bilateral settlement of AS transfer orders. Ancillary systems can benefit of the bilateral settlement of simultaneously sent debits and credits that shall be processed independently from each other.

# Generic account constellation for an AS settlement bank

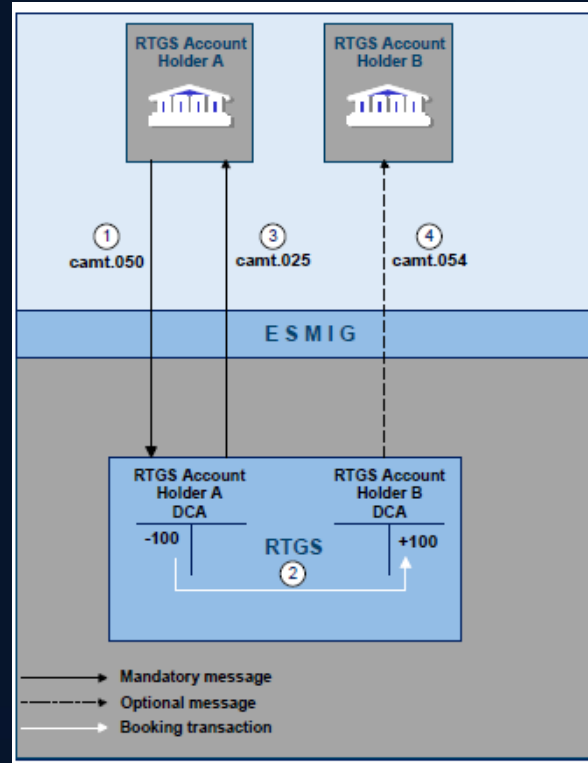


# Liquidity transfers

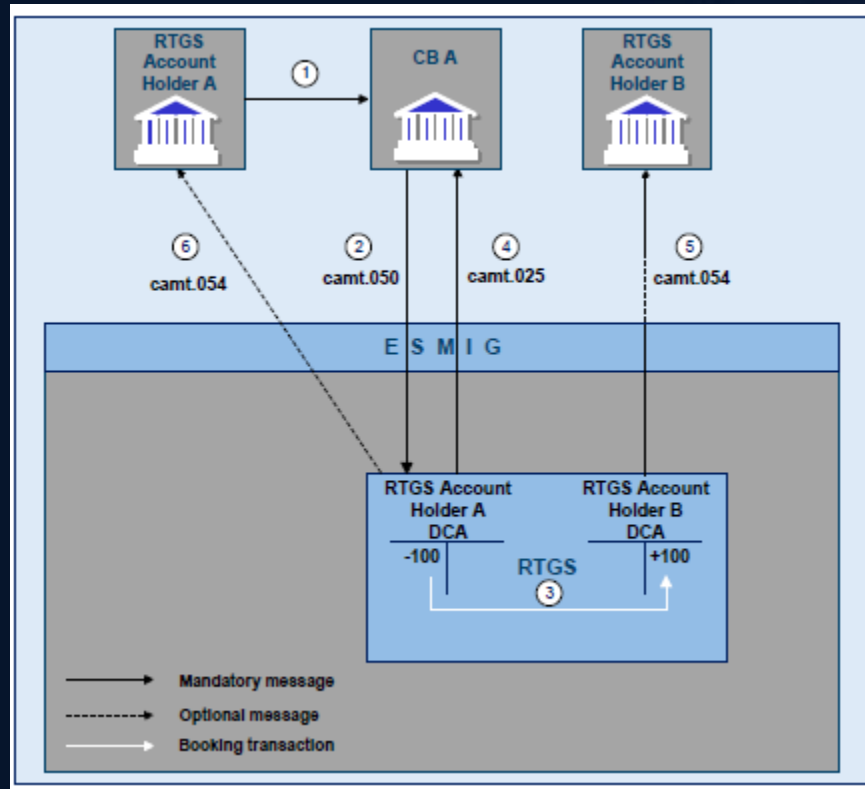
The following use cases for liquidity transfers exist in RTGS:

- Intra-service liquidity transfer between two RTGS DCAs (within the defined Liquidity Transfer Group).
- Intra-service liquidity transfer between an RTGS DCA and an CB account.
- Intra-service liquidity transfer between an RTGS DCA and a linked sub-account (AS settlement procedure C).
- Intra-service liquidity transfer between an RTGS DCA and an AS technical account (AS settlement procedure D).
- Inter-service liquidity transfer between an RTGS DCA and an MCA.
- Inter-service liquidity transfer between an RTGS DCA and an CLM CB Account.
- Inter-service liquidity transfer between an RTGS DCA and a DCA in another service (i.e. T2S or TIPS).

# Immediate intra-service liquidity transfer between two RTGS DCAs



# Immediate intra-service liquidity transfer between two RTGS DCAs initiated by a Central Bank



# Query management for RTGS

Query type	U2A	A2A	Query request message	Query response
Account balance query	X	X	GetAccount (camt.003)	ReturnAccount (camt.004)
Account statement query	X	X	ReportQueryRequest (admi.005)	BankToCustomerStatement (camt.053)
AS batch query	X			
Audit trail for RTGS query	X			
Broadcast query	X			
Cash transfer query	X	X	GetTransaction (camt.005)	ReturnTransaction (camt.006)
Current limits query	X	X	GetLimit (camt.009)	ReturnLimit (camt.010)
Current reservations query	X	X	GetReservation (camt.046)	ReturnReservation (camt.047)
Event query	X	X	GetBusinessDayInformation (camt.018)	ReturnBusinessDayInformation (camt.019)
File query	X			
Message query	X			
System time query	X	X	GetBusinessDayInformation (camt.018)	ReturnBusinessDayInformation (camt.019)
Task queue query	X			

# RTGS directory

- To support the routing of payments a structured RTGS Directory is provided. It includes a list of all BICs for RTGS Participants and parties that are addressable within RTGS.
- The full version and the delta version of the RTGS Directory are generated every business day during the SoD.
- RTGS participants may receive the RTGS Directory in two ways:
  - Push mode, when a appropriate report subscription was created.
  - Pull mode via the GUI.

O/M <sup>37</sup>	Field No.	Field name	Format	Description
M	1	BIC	CHAR(11)	BIC that identifies an RTGS Participant. This BIC is for information purpose only and it allows grouping all user BICs configured by a given RTGS Participant. It cannot be used to address payments.
M	2	Addressee BIC	CHAR(11)	BIC configured as authorised account user in CRDM. This BIC shall be used in the message business header to address payments.
M	3	Account Holder BIC	CHAR(11)	BIC identifying the RTGS DCA or CB Account Holder.
M	4	Institution Name	CHAR(105)	It is the name stored in the CRDM BIC directory together with the addressee BIC.
M	5	City Heading	CHAR(35)	It is the name of the city where the RTGS Participant is established.
O	6	National Sorting Code	CHAR(15)	It is the national sorting code of the RTGS Participant.
O	7	Main BIC Flag	CHAR(1)	Specifies if the BIC could be used to address the payments if the sender has no other information where to send to.
M	8	Type of Change	CHAR(1)	Exhaustive list of possible values: A – Added M – Modified D – Deleted U – Unchanged



# Participation types for RTGS directory

- Direct participants
  - Have direct access to RTGS.
  - Can provide indirect access to RTGS for other credit institutions.
  - Are responsible for their own reference data and for their own liquidity management in RTGS, and for monitoring the settlement process.
  - Are responsible for all cash transfers sent or received on their cash account by any entity registered through them.
- Multi-addressee access
  - RTGS account holders are able to authorise their branches and credit institutions belonging to their group to channel payments through the linked RTGS-DCA without their involvement by submitting/receiving cash transfers directly to/from RTGS.
- Indirect participants
  - Are directly linked to one RTGS DCA only (that can be located in another country).
  - Can be indirectly addressed.
  - Do not have an own RTGS DCA.
  - Need a published BIC-11.
- Addressable BIC
  - Correspondents (or branches of correspondents) linked to an RTGS DCA.

# Participation types for RTGS directory

Feature	Direct Participant	Indirect Participant / Addressable BIC	Multi-addressee access
Sending and receiving cash transfer orders	Directly	Via Direct Participant	Directly
Own cash account in RTGS	Yes	No	No
Liquidity provisioning	On its cash account in RTGS	By Direct Participant	By Direct Participant
Liquidity control	By itself	By Direct Participant	By Direct Participant
Addressability	Directly	By Direct Participant	Directly
Publication in RTGS Directory	As Direct Participant	As Indirect Participant / Addressable BIC	As Multi-addressee access



**QUESTIONS**

**ANSWERS**

